Five-Year Review Report

Fourth Five-Year Review Report for Mystery Bridge Road/U.S. Highway 20 EPA ID: WYD981546005

Evansville Natrona County, Wyoming

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Region 8
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List of Acronyms

AOC Administrative Order on Consent

ARAR Applicable or Relevant and Appropriate Requirement

BRA Baseline Risk Assessment

CERCLA Comprehensive Environmental Response, Compensation and Liability Act

CFR Code of Federal Regulations

CIC Community Involvement Coordinator

COC Contaminant of Concern

DCE Dichloroethene

Dow Chemical Company
DSI Dowell Schlumberger, Inc.

EPA United States Environmental Protection Agency

FS Feasibility Study
FYR Five-Year Review
HI Hazard Index

IC Institutional Control

KMI Kinder Morgan Energy Partners, L.P.
LARCO Little America Refining Company
LNAPL Light Non-Aqueous Phase Liquid
MCL Maximum Contaminant Level

μg/L Microgram per Liter mg/kg Milligrams per Kilogram

NCP National Oil and Hazardous Substances Pollution Contingency Plan

NPL National Priorities List O&M Operation and Maintenance

OU Operable Unit PCE Tetrachloroethene

PRP Potentially Responsible Party

RA Remedial Action

RAO Remedial Action Objective

RCRA Resource Conservation and Recovery Act

RD Remedial Design
RI Remedial Investigation
ROD Record of Decision

RPM Remedial Project Manager

SARA Superfund Amendments and Reauthorization Act

SVE Soil Vapor Extraction
TBC To-Be-Considered
TCA Trichloroethane
TCE Trichloroethene

VHO Volatile Halogenated Organic Compound

VOC Volatile Organic Compound

WDEQ Wyoming Department of Environmental Quality

Executive Summary

The Mystery Bridge Road/U.S. Highway 20 Superfund Site (the Site) is located in Natrona County, just east of Casper, Wyoming. The Site includes two areas: an industrial area consisting of the Kinder Morgan Energy Partners, L.P. (KMI) facility and the Dow Chemical Company/Dowell Schlumberger, Inc. (Dow/DSI) facility, and the Brookhurst residential subdivision consisting of 125 lots ranging from 2 to 5 acres in size. Beginning in 1963, KMI owned and operated a gas compression and transmission plant at the Site. Dow/DSI operated an oil production service facility at the Site from the 1950s until the 1980s. In addition, Dow/DSI washed and cleaned trucks and service vehicles on the industrial portion of the Site. As a result of industrial operations over many years, a mixture of wastewater, oils and solvents seeped into the ground and created two groundwater plumes flowing toward the residential subdivisions on Site.

The potentially responsible parties (PRPs), KMI and Dow/DSI, worked with the United States Environmental Protection Agency (EPA) to clean up the Site's two operable units (OUs) through a series of removal and remedial actions focusing on groundwater (OU1) and source contamination (OU2). Current Site activities include groundwater monitoring associated with the only area where contaminants remain above Safe Drinking Water Act (SDWA) maximum contaminant levels (MCLs) for protection of drinking water at the Dow/DSI property. The pumping and treatment of groundwater, required by the OU1 Record of Decision (ROD), was discontinued because Dow/DSI found light non-aqueous phase liquid that the system could not adequately treat. The triggering action for this five-year review (FYR) was the signing of the previous FYR on September 30, 2009.

The remedy at the Site currently protects human health and the environment. The soil has been cleaned to industrial standards, and institutional controls are in place to ensure that the KMI and Dow/DSI properties remain in industrial use and to regulate the handling of contaminated soils on the KMI and Dow/DSI properties. Institutional controls are in place to restrict the use of drinking water beneath the industrial properties until drinking water standards are met. However, to better determine the protectiveness of the remedy in the long term, groundwater sampling for 1,4-dioxane is needed. In order to ensure long-term protectiveness, the EPA should also evaluate current groundwater data and the need for additional groundwater sampling, considering the cessation of the pump-and-treat system in 2001.

Five-Year Review Summary Form

SITE IDENTIFICATION

Site Name: Mystery Bridge Road/U.S. Highway 20

EPA ID: WYD981546005

Region: 8 State: WY City/County: Evansville/Natrona County

SITE STATUS

NPL Status: Final

Multiple OUs? Has the Site achieved construction completion?

Yes Yes

REVIEW STATUS

Lead agency: EPA

If "Other Federal Agency" selected above, enter Agency name: Not Applicable

Author name: Frances Costanzi and Treat Suomi

Author affiliation: EPA Region 8 and Skeo Solutions

Review period: 2/25/2014 – 9/30/2014

Date of Site inspection: 6/3/2014

Type of review: Statutory

Review number: 4

Triggering action date: 09/30/2009

Due date (five years after triggering action date): 09/30/2014

Five-Year Review Summary Form (continued)

Issues/Recommendations

OU(s) without Issues/Recommendations Identified in the Five-Year Review:

OU₂

Issues and Recommendations Identified in the Five-Year Review:

OU(s): 1	Issue Category: Monitoring			
Issue: 1,4-Dioxane was not tested for during the remedial investigate but may be a contaminant of concern due to materials processed on				
	Recommendation: Conduct groundwater sampling for 1,4-dioxane.			
Affect Current Protectiveness				
No	Yes	PRP	EPA	9/30/2015

OU(s): 1	Issue Category: Remedy Performance				
	Issue: The pump-and-treat system selected in the OU1 ROD was stopped in 2001, prior to reaching cleanup levels.				
	Recommendation: Evaluate current groundwater data and the need for additional groundwater sampling, considering the cessation of the pumpand-treat system in 2001.				
Affect Current Protectiveness	Affect Future Implementing Oversight Party Milestone Date Party				
No	Yes EPA EPA 9/30/2015				

Protectiveness Statements

Operable Unit: 1	Protectiveness Determination: Short-term Protective	Addendum Due Date (if applicable):
		Not Applicable.

Protectiveness Statement:

The remedy at OU1 currently protects human health and the environment. Institutional controls are in place restricting the use of drinking water beneath the industrial properties until drinking water standards are met. However, to better determine the protectiveness of the remedy in the long term, groundwater sampling for 1,4-dioxane is needed. In order to ensure long-term protectiveness, the EPA should also evaluate current groundwater data and the need for additional groundwater sampling, considering the cessation of the pump-and-treat system in 2001.

Operable Unit:	Protectiveness Determination:	Addendum Due Date
2	Protective	(if applicable):
		Not Applicable.

Protectiveness Statement:

The remedy at OU2 is protective of human health and the environment. The soil has been cleaned to industrial standards and institutional controls are in place to ensure that the KMI and Dow/DSI properties remain in industrial use and to regulate handling of excavated soils on the KMI and Dow/DSI properties.

Sitewide Protectiveness Statement

Protectiveness Determination: Addendum Due Date (if applicable):
Short-term Protective Not Applicable

Protectiveness Statement:

The remedial action at OU2 is protective. However, because the remedial action at OU1 currently protects human health and the environment, the Site is currently protective of human health and the environment in the short term.

Fourth Five-Year Review Report for Mystery Bridge Road/U.S. Highway 20 Superfund Site

1.0 Introduction

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy is protective of human health and the environment. FYR reports document FYR methods, findings and conclusions. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The United States Environmental Protection Agency (EPA) prepares FYRs pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Section 121 and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA Section 121 states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each 5 years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

EPA interpreted this requirement further in the NCP, 40 Code of Federal Regulations (CFR) Section 300.430(f)(4)(ii), which states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after initiation of the selected remedial action.

Skeo Solutions, an EPA Region 8 contractor, conducted the FYR and prepared this report regarding the remedy implemented at the Mystery Bridge Road/U.S. Highway 20 Superfund Site (the Site) in Evansville, Natrona County, Wyoming. EPA's contractor conducted this FYR from February to September 2014. EPA is the lead agency for developing and implementing the remedy for the potentially responsible party (PRP)-financed cleanup at the Site. The Wyoming Department of Environmental Quality (WDEQ), as the support agency representing the State of Wyoming, has reviewed all supporting documentation and provided input to EPA during the FYR process.

This is the fourth FYR for the Site. The triggering action for this statutory review is the previous FYR report. The FYR is required because hazardous substances, pollutants or contaminants

remain at the Site above levels that allow for unlimited use and unrestricted exposure. The Site consists of two operable units (OUs), both addressed in this FYR report.

2.0 Site Chronology

Table 1 lists the dates of important events for the Site.

Table 1: Chronology of Site Events

Event	Date
Gas compressor station opened at the present-day Kinder Morgan Energy	1923
Partners, L.P. (KMI) property	
Dow Chemical Company/Dowell Schlumberger, Inc. (Dow/DSI) began	1950s
operations	
Dow/DSI released chlorinated solvents	1950s-1970s
KMI facility began full operations, and an underground pipeline	1965
containing 5,000-10,000 gallons of absorption oil burst	
KMI backfilled the western half of the flare pit and constructed the	October 1984
eastern half	
Residents complained of poor air and water quality	August 1986
EPA and the Wyoming Department of Environmental Quality (WDEQ)	October 1, 1986
began Site investigations	
EPA filed Action Memorandum for Removal Request to address	January 7, 1987
immediate threats to the Brookhurst subdivision	
KMI discontinued use of the flare pit	1987
EPA conducted a Site inspection	June 29, 1987
EPA conducted a preliminary assessment	September 30, 1987
The potentially responsible parties (PRPs), KMI and Dow/DSI, entered	December 15, 1987
into an Administrative Order on Consent to perform the remedial	
investigation/feasibility study (RI/FS)	
PRPs initiated removal actions on the Dow/DSI property	January 4, 1988
PRPs began the RI/FS	February 15, 1988
PRPs completed removal actions on the Dow/DSI property	February 22, 1988
EPA proposed the Site for listing on the National Priorities List (NPL)	June 24, 1988
Residents connected to the Evansville municipal water system	January 1989
Risk/health assessment started	August 20, 1989
Risk/health assessment completed	December 15, 1989
EPA finalized the Site on the NPL	August 30, 1990
PRPs finished RI/FS and EPA signed Record of Decision (ROD) for	September 24, 1990
Operable Unit 1 (OU1)	
PRPs entered into a Consent Decree to conduct the remedial	October 2, 1991
design/remedial action (RD/RA)	
PRPs completed RD for OU1 and began RA for OU1	September 14, 1993
PRPs completed RA for OU1 and EPA prepared the Preliminary Close-	December 16, 1993
Out Report	
Dow/DSI completed RA for their portion of OU2	July 7, 1994
KMI completed RA for their portion of OU2	April 24, 1998
EPA signed the Site's first FYR Report	February 4, 1999
EPA approved Dow/DSI ceasing active groundwater extraction	April, 2001
EPA signed the Site's second FYR Report	September 27, 2004
EPA signed the Site's third FYR Report	September 30, 2009
KMI and Schlumberger Technology implemented restrictive covenants	September 29, 2010

Event	Date
EPA signed the ROD for OU2	September 30, 2010

3.0 Background

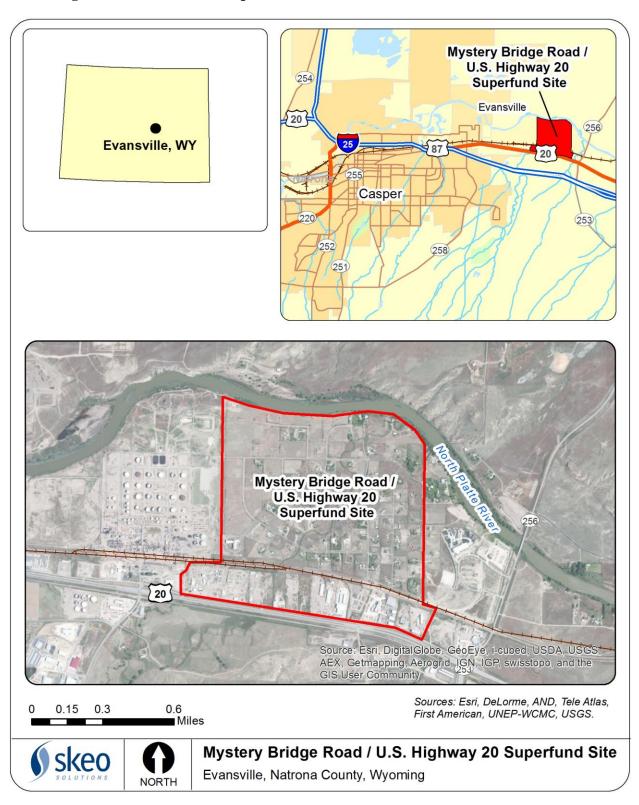
3.1 Physical Characteristics

Located in Natrona County, just east of the City of Casper in central Wyoming, the Site consists of an industrial area and a larger residential area (see Figures 1 and 2). The industrial area, on the southern boundary of the Site, includes two neighboring facilities operated by Kinder Morgan Energy Partners, L.P. (KMI) and the Dow Chemical Company/Dowell Schlumberger, Inc. (Dow/DSI). The KMI facility, at 5750 East Yellowstone Highway, Evansville, Wyoming 82609, is west of the Dow/DSI facility, at 5760 East Yellowstone Highway, Evansville, Wyoming 82636 (Figure 2). Marking the southernmost border of the Site is U.S. Highway 20, which runs east-west. North of the industrial facilities is a Burlington-Northern Railroad line, which divides the industrial area from the rural residential area. The two portions of the residential area are known as the Brookhurst subdivision and the Mystery Bridge Road residences. The residential area has about 125 lots, ranging from 2 to 5 acres in size. There are about 40 homes in the subdivision. The North Platte River marks the northern boundary of the Site. To the east is Mystery Bridge Road, which runs north-south, and to the west is the former Sinclair/Little America Refining Company (LARCO) site that Texaco currently operates under a Resource Conservation and Recovery Act (RCRA) permit. The LARCO facility is not part of the Mystery Bridge Site. The entire Site spans approximately 410 acres.

An alluvial aquifer is underneath the Site and ranges in thickness from 13 to 68 feet. The groundwater flows north, toward the Platte River.

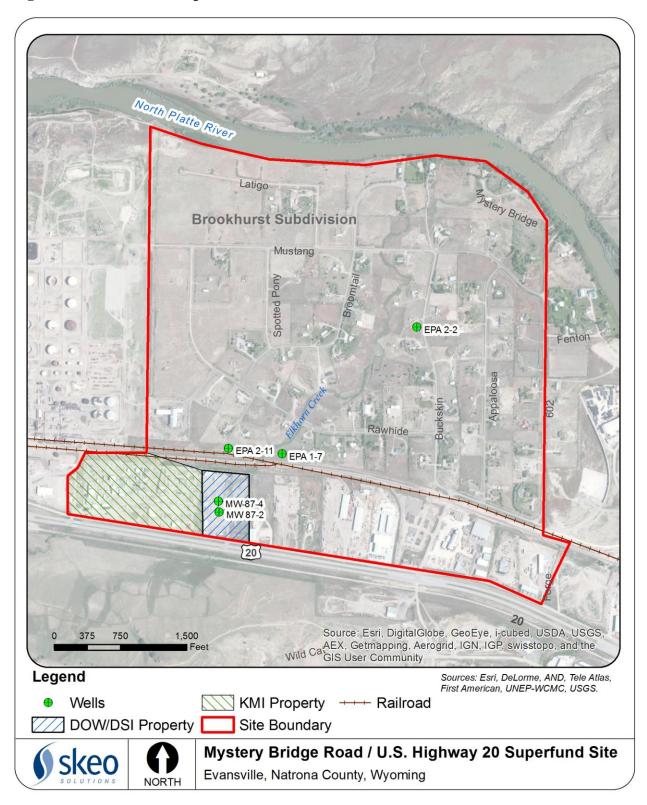
The Site's topography is generally flat, with some sloping areas near the banks of the North Platte River. The angular slope of the Site is mostly less than 2 percent, but the slope reaches into steeper ranges, between 7 to 25 percent, along the river. The 100- and 500-year floodplains are between 50 to 100 feet of Elkhorn Creek and the North Platte River.

Figure 1: Site Location Map



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

Figure 2: Detailed Site Map



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

3.2 Land and Resource Use

The Site includes areas for residential use and heavy industrial use. Tallgrass Energy Partners currently operates the gas compression and transmission plant on the KMI property. No active operations occur at the Dow/DSI facility, which is used for storage. The residential areas are expected to remain residential and the industrial areas are anticipated to remain zoned for industrial use only. The Burlington-Northern Railroad line, which separates the industrial area from the residential area, is expected to remain on Site. Land use surrounding the Site is primarily industrial, with the Sinclair/LARCO facility off-Site and to the west.

The aquifer underneath the Site once served as the drinking water source for homes in the residential area. Although some Brookhurst and Mystery Bridge Road residents still have private wells on their properties, all but one residence currently receives drinking water from the Evansville municipal water supply, which is not affected by the Site contamination. The owner of that residence refused to be connected to municipal water. In addition, the contaminated groundwater plume is no longer beneath the residential area (Appendix G).

3.3 History of Contamination

KMI Facility

A gas compressor station first opened at the Site in 1923. Beginning in the 1960s, Kinder Morgan Energy Partners, L.P., formerly known as KN Energy, operated a natural gas plant at the Site. Regular operations included natural gas fractionation, compression, cleaning, odorizing and transmission. KMI operators began using an earthen impoundment as a flare pit to collect spent materials, which may have included condensate from natural gas, absorption oil, emulsions, antifoulant, anticorrosive agents, liquids from the flare stack, wastes treated with potassium hydroxide and lubrication oils.

Operators filled in the western half of the flare pit impoundment and constructed a new flare pit lined with concrete on the eastern side in October 1984. KMI ceased using the flare pit by 1987 and waste usually routed for the flare pit was sent to aboveground storage tanks.

A catchment area near the KMI facility (just west of Elkhorn Creek) collected surface water runoff from the plant. This runoff contained contaminants from the plant and steam condensate from a dehydration unit. In 1984, KMI attempted to reroute runoff from this catchment area.

Over the course of the facility's operational history, there were several documented spills of absorption oil, which is used to remove impurities from natural gas. In 1965, an underground absorption oil pipe burst, releasing about 5,000 to 10,000 gallons of absorption oil, which leaked into the ground beneath the process area. Between 1965 and 1987, several small leaks and spills occurred near the flare pit and catchment area.

As a result of the combined petroleum sources and inappropriate handling, a plume of light non-aqueous phase liquid (LNAPL) and volatile organic compounds (VOCs), which are liquid or solid compounds that easily evaporate and can cause health effects when concentrated, formed beneath the Site.

Dow/DSI Facility

Dow/DSI began operating their on-Site gas and oil enhancement services facility in the 1950s. In addition to enhancement services, Dow/DSI also repaired, maintained and cleaned company trucks and vehicles on Site. This often entailed cleaning trucks using chlorinated solvents that were stored in drums on Site. Wastewater containing chlorinated solvents flowed through a gravel leach sump on the western portion of the property. Dow/DSI utilized a 1,000-gallon oil/water separator tank to collect oil film and solid residue from the wash water, which then flowed through a drain to the leach sump system. The Dow/DSI facility also contained a toluene storage area on the northern end of the facility.

Contaminants from the wash water disposal area, leach sump system and the toluene storage area created a groundwater plume of volatile halogenated organic compounds (VHOs) flowing north towards the Burlington-Northern railroad right-of-way and the residential area. VHOs detected include 1,1-dichloroethene, trans-1,2-dichloroethene, trichloroethene, tetrachloroethene, 1,1,1-trichloroethane and 1,1-dichloroethane.

3.4 Initial Response

In August 1986, nearby residents complained of poor water. The Agency for Toxic Substances and Disease Registry (ATSDR) then issued an advisory after VHOs were detected in area drinking water wells. Studies determined that a contaminated groundwater plume from the nearby industrial facilities was responsible for the poor water and air quality.

Starting in 1987, EPA searched to identify potentially responsible parties (PRPs) for the contaminated groundwater. EPA also oversaw a removal action in January 1987 for immediate installation of 25 groundwater monitoring wells and alternative drinking water provisions for area residents until permanent alternatives could be established. By July 1987, EPA identified KMI and Dow/DSI as the companies responsible for generating the contaminated plumes emanating from the industrial area. By December 1987, KMI and Dow/DSI entered into Administrative Orders on Consent to perform immediate removal actions to control the sources of contamination and inhibit further migration of the existing groundwater plumes into the residential subdivision. EPA's initial response actions included extending a water transmission line from the Town of Evansville and connecting residents to the municipal water system after detecting elevated levels of contaminants in area drinking water wells. In addition, the Evansville water treatment plant received a new water intake and related upgrades. This work was completed in January 1989.

Based on a 1987 engineering evaluation and cost analysis report, Dow/DSI performed a removal action combining excavation of heavily contaminated soils, remediation using a soil vapor extraction (SVE) system, and direct removal of the waste oil tank. Approximately 440 cubic yards of contaminated soils from the leachate sump area were excavated and sent off Site to a landfill. The SVE remediation removed an additional 300 pounds of contaminants from the leachate sump area. In addition, the SVE system removed approximately 6,000 pounds of solvents from contaminated soils in the toluene storage system. Post-removal sampling and testing confirmed that no further removal work was necessary.

In November 1989, KMI conducted a removal action through a combined effort of SVE and groundwater pumping and treatment.

EPA first proposed the Site for the National Priorities List (NPL) on June 24, 1988. The Site was finalized on the NPL on August 30, 1990.

3.5 Basis for Taking Action

Investigations of the Site found contamination impacting groundwater, surface water, soils, sediments and air quality. The groundwater plume emanating from the Dow/DSI facility contained elevated levels of VHOs, including 1,1-dichloroethene, trans-1,2-dichloroethene, trichloroethene, tetrachloroethene, 1,1,1-trichloroethane and 1,1-dichloroethane. Groundwater at the KMI facility contained elevated levels of aromatic hydrocarbons, including benzene, ethylbenzene, toluene and xylenes. These two plumes flow north toward the residential subdivision of Brookhurst, residences along Mystery Bridge Road and the North Platte River. Investigations by the PRPs also found minor levels of contaminants in the surface water and sediments of Elkhorn Creek, which were caused by contamination originating at the Site.

EPA prepared a baseline risk assessment (BRA) in 1989. This BRA estimated the potential human health and environmental risks that would result if no actions were taken to address on-Site and off-Site contamination. The BRA indicated that exposure to contaminants through a variety of exposure paths, including ingestion, dermal contact and inhalation, could result in significant health risks. There was a higher chance that residents using contaminated well water are exposed to contaminant gases that vaporize and become concentrated in indoor spaces of homes and garages. This exposure to indoor organic vapor can occur from indoor air cooling systems and from other common activities such as cooking, showering or bathing. In addition to estimating the health risks associated with exposure to contaminated groundwater, the BRA assessed the potential hypothetical risks if the industrial properties were redeveloped for residential use before appropriate remediation measures were taken. Although the estimated cancer risks in both scenarios fell below the criteria for triggering direct remedial action, concentrations of contaminants in groundwater still exceeded maximum contaminant levels (MCLs) for Safe Drinking Water Act standards.

The 1990 RI/FS report determined that two plumes originating from the industrial areas were migrating in a northeast direction through the residential subdivision. One plume (from the Dow/DSI facility) was contaminated with VHOs; the second plume (from the KMI facility) was contaminated with aromatic hydrocarbons. The RI/FS report also concluded that despite initial removal work by Dow/DSI and KMI, some underground soil contamination remained in the industrial areas, but that the areas are appropriate for industrial use.

4.0 Remedial Actions

In accordance with CERCLA and the NCP, remedial actions are required to protect human health and the environment and to comply with applicable or relevant and appropriate requirements (ARARs). A number of remedial alternatives were considered for the Site, and final selection was made based on an evaluation of each alternative against nine evaluation criteria that are specified in Section 300.430(e)(9)(iii) of the NCP. The nine criteria are:

- 1. Overall Protection of Human Health and the Environment
- 2. Compliance with ARARs
- 3. Long-Term Effectiveness and Permanence
- 4. Reduction of Toxicity, Mobility or Volume through Treatment
- 5. Short-Term Effectiveness
- 6. Implementability
- 7. Cost
- 8. State Acceptance
- 9. Community Acceptance

4.1 Remedy Selection

The Site was divided into two operable units (OUs). OU1 consists of the groundwater plumes and OU2 includes the original contaminated soil areas at the industrial facilities. The remedial action objectives (RAOs) selected in the 1990 OU1 and 2010 OU2 Records of Decision (RODs) are the following:

- Prevent ingestion of water containing trans-1,2-dichloroethene (DCE), 1,1,1-trichloroethane (TCA), trichloroethene (TCE), tetrachloroethene (PCE), benzene, toluene, ethylbenzene or xylene at concentrations that either: a) exceed MCLs or proposed MCLs, or b) present a total carcinogenic risk range greater than 1x10⁻⁴ to 1x10⁻⁶
- Restore the alluvial aquifer to concentrations that both: a) meet the MCLs or proposed MCLs for trans-1,2-DCE, 1,1,1-TCA, TCE, PCE, benzene, toluene, ethylbenzene and xylene, and b) present a total carcinogenic risk range less than 1×10^{-4} to 1×10^{-6} .
- Restrict the use of the KMI and Dow/DSI properties to industrial uses.
- Control handling of excavated soils on the KMI and Dow/DSI properties.

OU1

EPA signed the ROD for OU1 on September 24, 1990. The selected remedy outlined in the OU1 ROD included continued operation of the groundwater extraction and treatment system that the PRPs originally constructed under removal actions. Additional components of the selected remedy included groundwater monitoring to determine if additional extraction or monitoring points were necessary to adequately track the contaminated plume. It was determined that no additional expansion of the existing groundwater pump-and-treat system was necessary. The major elements of the remedy selected in the OU1 ROD include:

- Monitoring groundwater.
- Extracting contaminated groundwater.
- Air stripping the extracted groundwater.
- Injecting the treated groundwater.
- Natural attenuation for the downgradient portion of the Dow/DSI VHO plume.
- Institutional controls restricting groundwater use.

The cleanup levels selected in the OU1 ROD are presented in Table 2.

Table 2: Groundwater COC Cleanup Levels

Groundwater COC	ROD Cleanup Levels (μg/l) ^a
Benzene	5
Ethylbenzene	700
Toluene	2,000
Xylenes	10,000
TCE	5
1,1,1-TCA	200
PCE	5
trans-1,2-DCE	70

a. The OU1 cleanup levels are the final and proposed maximum contaminant levels (MCLs) established under the National Drinking Water Regulations 40 CFR 141.11; proposed MCLs were used as the cleanup levels for ethylbenzene, toluene, xylenes, trans-1,2-DCE and PCE.

OU₂

EPA signed the ROD for OU2 on September 30, 2010. The active remediation of the source contamination was completed for OU2 under prior removal actions. The Dow/DSI and KMI properties were cleaned to levels safe for industrial use. Therefore, the selected remedy outlined in the OU2 ROD was implementation of institutional controls to restrict the use of the KMI and Dow/DSI properties to industrial uses and to control handling of excavated soils on the KMI and Dow/DSI properties.

4.2 Remedy Implementation

OU1

In October 1991, KMI and Dow/DSI entered into a consent decree with EPA to conduct the selected OU1 remedy.

Under removal actions ordered in 1989, KMI began treating both contaminated groundwater, using ex-situ treatment by air stripping, and contaminated soil, by SVE. LNAPL was directly recovered from groundwater extraction wells. After collecting approximately 10,800 gallons, the LNAPL recovery system was shut down in 1994. The 1990 OU1 ROD specified continued use of the groundwater extraction and treatment system until cleanup levels were achieved. Extracted groundwater was reinjected after treatment. The groundwater extraction and treatment system operated through 1996. Monthly groundwater sampling continued for a year. During this period, the results consistently fell below MCLs, so monitoring continued on a quarterly cycle.

In January 2001, KMI submitted a request to EPA to modify the network of groundwater monitoring wells. This request included discontinuing use of two monitoring wells and abandonment of 11 other wells. EPA approved this request the following month. Groundwater monitoring continued at remaining wells on the KMI facility.

Dow/DSI began installing extraction wells in August 1993, followed by a groundwater treatment unit and an infiltration gallery. This system remained operational through April 2001, when EPA approved a request by Dow/DSI to cease active groundwater extraction. The active groundwater extraction and treatment was halted because Dow/DSI found LNAPL that the system as designed could not adequately treat. EPA is currently reviewing the groundwater data to determine if any change is needed to the remedy at this portion of the Site.

OU₂

Under removal actions authorized by EPA, Dow/DSI cleaned up contaminated soils to industrial levels through SVE treatment and direct excavation. Between 1988 and 1993, the SVE system recovered approximately 6,000 pounds of contaminants from soil near the former oil/water separator and storage tanks. The company also excavated about 440 cubic yards of contaminated soils from the former sump area. Post-removal sampling determined that no further action was necessary.

Institutional controls are in place at the Site. These are discussed in Section 6.3 of this report.

4.3 Operation and Maintenance (O&M)

Currently, groundwater monitoring is the only operation and maintenance (O&M) activity that is ongoing at the Site. The 1990 OU1 ROD originally estimated annual O&M costs for groundwater sampling and analysis at \$11,000 per year. Expenditures

from January 2009 to December 2013 were approximately \$130,000. There were no unusual expenditures from 2009 to 2013.

5.0 Progress Since the Last Five-Year Review

The protectiveness statement from the 2009 FYR for the Site stated the following:

The remedy as implemented is currently protective of human health and the environment.

Operable Unit 1, which was focused on the contaminated groundwater at the Site, is currently protective of human health and the environment. Contaminated groundwater remaining on the KMI and Dow/DSI facilities is not currently used. Groundwater contamination in residential areas has remained at or below the action levels for multiple monitoring events. A public water supply in the residential area minimizes the likelihood of human exposure to Site contaminants. The protectiveness of the remedy will be further enhanced once institutional controls for groundwater are implemented.

Operable Unit 2, which focused on the contaminant source areas, is currently protective of human health and the environment. Work under this OU was conducted under two removal orders for the KMI and Dow/DSI properties. The protectiveness of the remedy will be further enhanced once institutional controls are implemented.

Other Comments: The potential for indoor air contamination has been reviewed in the past and determined to be insignificant. However, since more is now understood about this issue, this review recommends that a review of more recent data be conducted to ensure this potential avenue of exposure has been adequately addressed.

The 2009 FYR included five issues and recommendations. This report summarizes each recommendation and its current status below.

Table 3: Progress on Recommendations from the 2009 FYR

Recommendation	Party	Milestone	Action Taken and	Date of
	Responsible	Date	Outcome	Action
Implement protocol in use at former Casper Amoco Refinery. Requires providing map to Wyoming State Engineers office illustrating area of concern. State Engineer then solicits technical opinion from Wyoming Department of Environmental Quality (WDEQ) when well permit application is received. State Engineer then implements WDEQ recommendation. EPA is then notified of WDEQ determination.	PRP/WDEQ	6/1/2010	Complete. Institutional controls implemented at both KMI and Dow/DSI properties, including groundwater restrictions.	9/29/2010

Recommendation	Party Responsible	Milestone Date	Action Taken and Outcome	Date of Action
Land use restrictions need to be implemented on the KMI and Dow/DSI properties, since cleanup was not to levels that allow for unrestricted use.	PRPs/EPA	6/1/2010	Complete. Land use institutional controls implemented at both KMI and Dow/DSI properties.	9/29/2010
Continued monitoring of groundwater quality trends regarding sporadic groundwater contamination above performance standards.	PRP/EPA	Ongoing until ROD requirement is met	Complete. This recommendation continues as part of regular O&M activities at the Site. KMI property has met cleanup standards. Monitoring is ongoing at Dow/DSI property.	10/30/2010
Continued monitoring of groundwater quality trends regarding reoccurrence of light non-aqueous phase liquid in multiple monitoring wells during period of low groundwater table.	PRP/EPA	Ongoing until ROD requirement is met	Complete. This recommendation continues as part of regular O&M activities at the Site. KMI property has met cleanup standards. Monitoring is ongoing at Dow/DSI property.	10/30/2010
Conduct a review of the most recent data to ensure the indoor vapor exposure pathways remain protective.	ЕРА	6/1/2010	Complete. Vapor intrusion modeling indicated the pathway is protective. This was documented in the 2010 ROD.	9/30/2010

6.0 Five-Year Review Process

6.1 Administrative Components

EPA Region 8 initiated the FYR in February 2014 and scheduled its completion for September 2014. EPA remedial project manager (RPM) Frances Costanzi led the EPA Site review team, which also included EPA community involvement coordinator (CIC) Cynthia Peterson and contractor support provided to EPA by Skeo Solutions. The review schedule established consisted of the following activities:

- Community notification.
- Document review.
- Data collection and review.
- Site inspection.
- Local interviews.
- FYR Report development and review.

6.2 Community Involvement

In July 2014, EPA published a public notice in the *Casper Star Tribune* newspaper announcing the commencement of the FYR process for the Site, providing contact information for Fran Costanzi and Cynthia Peterson of EPA and Jane Francis of WDEQ and inviting community participation. The press notice is available in Appendix B. No one contacted EPA as a result of the advertisement. EPA also reached out to a variety of community members; their interviews are summarized in Section 6.6 below.

EPA will make the final FYR Report available to the public. EPA will place copies of the document in the designated Site repository: Natrona County Public Library, 307 East 2nd Street Casper, Wyoming 82601. Upon completion of the FYR, EPA will place a public notice in the *Casper Star Tribune* newspaper to announce the availability of the final FYR Report in the Site's document repository and on EPA's website.

6.3 Document Review

ARARs Review

This FYR included a review of relevant, Site-related documents, including the RODs, remedial action reports and recent monitoring data. A complete list of the documents reviewed is in Appendix A.

Remedial actions are required to comply with the ARARs identified in the RODs. In performing the FYR any newly promulgated standards, including revised chemical-specific requirements (such as MCLs and ambient water quality criteria), revised actionand location-specific requirements, and State standards (if they were considered ARARs in the ROD), are reviewed to establish whether the new requirement indicates that the remedy is no longer protective.

Groundwater

The OU1 ROD identified the MCLs established by the Safe Drinking Water Act as the groundwater ARARs for the Site. In the absence of an established MCL, proposed MCLs were selected for the remaining COCs and are to-be-considered (TBC) criteria according to the OU1 ROD (Table 4). As shown in Table 4, the five COCs with TBC criteria now have established MCLs; the MCL for toluene became more stringent than the proposed MCL, while the MCLs for PCE and trans-1,2-dichloroethene were the same or less stringent, respectively.

Soil

The OU1 and OU2 RODs did not include chemical-specific ARARs for soil. EPA developed Site action levels for soil in 1988 to support expedited removal actions.

Table 4: ARAR Review for Groundwater COCs

Groundwater COC	OU1 Groundwater ARARs (µg/L)	Current Standard (µg/L) ^a	ARAR Change
Benzene	5	5	No change
Ethylbenzene	700 ^b	700	No change
Toluene	$2,000^{b}$	1,000	More stringent
Xylenes	10,000 ^b	10,000	No change
trans-1,2-DCE	70 ^b	100	Less stringent
PCE	5 ^b	5	No change
TCE	5	5	No change
1,1,1-TCA	200	200	No change

Notes.

Institutional Control Review

In 2010, EPA issued the OU2 ROD, which selected a remedy using institutional controls to ensure that the Site would remain protective of human health and the environment. These institutional controls include restrictive covenants that restrict use of the KMI and Dow/DSI properties to industrial uses, restrict the use of drinking water beneath the industrial properties until drinking water standards are met, and regulate handling of excavated soils on the KMI and Dow/DSI properties (Figure 3). The restrictive covenants for the KMI and Dow/DSI properties were filed with the Natrona County Clerk in September 2010. Copies of the restrictive covenants are available in Appendix H. Because groundwater MCLs are not exceeded in the residential area, no institutional controls are needed for those areas.

On June 3, 2014, EPA and Skeo Solutions conducted research at the Natrona County Clerk and Assessor's offices and confirmed current ownership information and implementation of institutional controls for the property parcels at the KMI and Dow properties. Parcel details and ownership information pertaining to the Site areas requiring institutional controls are listed in Table 5.

Table 5: Property Detail from Natrona County

Parcel number	Owner
33780530000300	The Dow Chemical Company
33780530000400	Dowell (Division of Dow Chemical)
33780530000500	KM Upstream LLC
33780530000700	KM Upstream LLC
33780530000800	KM Upstream LLC

a) Based on EPA's National Drinking Water MCLs as of 2014 (40 CFR 141.11), available at http://www.epa.gov/safewater/contaminants/index.html#primary (accessed on 6/10/2014).

b) The OU1 ROD established the proposed MCL for these compounds as TBC.

Table 6 lists the institutional controls associated with areas of interest at the Site.

Table 6: Institutional Control Summary Table

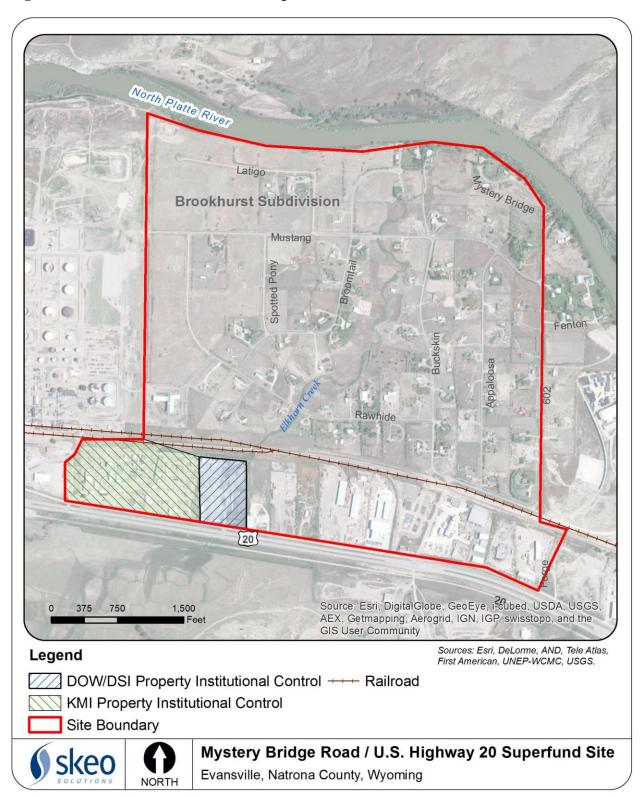
Media	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Instrument in Place	Notes
Ground Water	Yes	Yes	33780530000300 33780530000400 33780530000500 33780530000700 33780530000800	Restrict installation of groundwater wells and groundwater use until safe drinking water MCLs are met.	Restrictive covenant	Groundwater ICs are not needed in the residential area because the wells there have achieved MCLs.
Soil	Yes	Yes	33780530000300 33780530000400 33780530000500 33780530000700 33780530000800	Restrict use of the KMI and Dow/DSI properties to industrial uses and regulate handling of excavated soils on the KMI and Dow/DSI properties.	Restrictive covenant	None

6.4 Data Review

The 1990 OU1 ROD required monitoring of the two groundwater contaminant plumes at the Site: a benzene, toluene, ethylbenzene and xylene (BTEX) plume emanating from the KMI property and a VHO plume emanating from the Dow/DSI property.

Isoconcentration maps for benzene and PCE, the main COCs within each type of plume, show that both plumes became considerably smaller between 1993 and 2010 (Appendix G). As of January 2011, COCs in groundwater at the KMI property (BTEX plume) met the cleanup levels and EPA determined monitoring was no longer required. Groundwater monitoring continued at the Dow/DSI property during the FYR period because not all COCs have met cleanup levels in all wells.

Figure 3: Institutional Control Base Map



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

During this FYR period, PRP contractors collected groundwater samples and static water level measurements quarterly from 27 monitoring wells in accordance with the 1993 Ground-Water Monitoring Plan for the Dow Chemical/Dowell Schlumberger Remedial Design and Remedial Action at the Brookhurst/Mystery Bridge Site. During sampling events between 2009 and 2014, groundwater samples at the Dow/DSI property were analyzed for TCE, PCE, 1,1-DCE and 1,1,1-TCA. Beginning in 2011, samples were also analyzed for trans-1,2-DCE, cis-1,2-DCE and vinyl chloride.

The PRP contractor collected groundwater level measurements during each of the quarterly sampling events and used the data to create potentiometric surface contour maps. Based on review of these maps, groundwater on the Dow/DSI property flows to the east. However, due to the presence of VHOs in the residential area north of the Site, groundwater flow direction appears to vary seasonally with a northerly flow component at times. A regional potentiometric surface contour map that includes the residential area north of the Site could not be prepared because top-of-casing elevations for the residential wells were unavailable.

During the groundwater monitoring events, LNAPL (up to 0.03 foot in the third quarter 2013) or a sheen was reported in well EPA2-11, located north of the Dow/DSI property and south of the residential subdivision (Figure 2). According to the 2013 Third Quarter Progress Report, the hydrocarbon LNAPL was determined to be unrelated to the Site based on a review of the March 2001 monthly progress report prepared by Mueller.

PCE is the only COC in groundwater detected above its ROD cleanup goal (i.e., the current MCL of 5 micrograms per Liter (μg/L)) between first quarter sampling in 2009 and first quarter sampling in 2014 (Appendix G). All other COCs either were not detected or were detected at trace levels below cleanup levels. During this timeframe, PCE concentrations were at or above the MCL of 5 μg/L in 11 wells (DSIMW-3, DSIMW-4, EPA2-15, MKMW-1, MW87-7, PCMW-2, EPA1-7, EPA2-2, MW87-2, MW87-4, MW87-8) at concentrations ranging from 5.0 μg/L to 28 μg/L. PCE concentrations in eight of the 11 wells declined to below the MCL by July 2012 and have remained below the MCL since that time. The remaining three wells (EPA1-7, EPA2-2 and MW87-2) report sporadic detections of PCE above the MCL (Figure 4); however, PCE did not exceed the MCL during the three most recent sampling events in EPA1-7 and during the four most recent sampling events in EPA2-2. PCE exceeded the MCL only one time at EPA2-2 (January 2013) during the past five years.

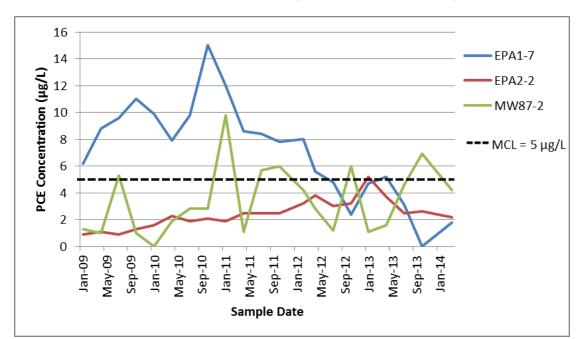


Figure 4: PCE Concentrations in Wells EPA1-7, EPA2-2 and MW87-2, 2009-2014

Dow/DSI recently submitted a request to EPA to amend the groundwater monitoring program at the Site. The PRP requested that 25 of the 27 wells be removed from the program because measurements from the 25 wells have met groundwater cleanup levels for the required four consecutive quarters specified in paragraph 46a (Completion of the Remedial Action) of the Consent Decree. The two remaining wells for inclusion in the sampling program are EPA1-7 and MW87-2. One well proposed for elimination, MW87-4, has had PCE below the MCL of 5 μ g/L since October 2010 but concentrations have recently been increasing slightly (1.6 μ g/L in July 2013 to 3.1 μ g/L in October 2013 to 3.9 μ g/L in March 2014). Therefore, it may be beneficial to keep MW87-4 in the sampling plan. At EPA's request, the PRP has also proposed a one-time sampling event for 1,4-dioxane in wells that showed recent detections of 1,1,1-TCA or its degradation product 1,1-DCE. EPA is currently reviewing the proposed changes to the groundwater monitoring plan.

Although performance standards for the VHO plume have not yet been met, detections of PCE above the MCL only occur sporadically in a limited number of wells.

6.5 Site Inspection

On June 3, 2014, Frances Costanzi (EPA RPM), Cynthia Peterson (EPA CIC), Jane Francis (WDEQ Project Manager), Treat Suomi and Alison Frost from EPA contractor Skeo Solutions, PRP representatives from KMI and Dow/DSI, staff from the Dow/DSI's O&M contractor, and staff from Tallgrass Energy Partners met at the Site. The group toured the Site to observe the condition of the Site, including monitoring wells.

The Site was well maintained and the remedy appeared to be in working order. The former source areas continue to be maintained for industrial use. Chain-link fencing surrounds both the KMI property and the Dow/DSI property. With one exception (on the KMI property) the wells appeared in good condition and locked. Site inspection participants toured the residential neighborhood; all wells were found to be secured and in good condition. The complete Site inspection checklist is available in Appendix D. Photographs from the Site inspection are available in Appendix E.

As part of the Site inspection, the RPM, the CIC and Skeo Solutions staff visited the designated Site repository, Natrona County Public Library. The repository contained a CD-ROM with the Administrative Record as of September 2010.

6.6 Interviews

The FYR process included interviews with parties affected by the Site, including the current landowners and regulatory agencies involved in Site activities or aware of the Site. The purpose was to document the perceived status of the Site and any perceived problems or successes with the phases of the remedy implemented to date. The interviews are summarized below. Appendix C provides the complete interviews.

<u>Virgilio Cocianni</u>: Virgilio Cocianni is the Remediation Manager for Schlumberger Technology Corporation and represents Dow/DSI, which is a PRP for the Site. Mr. Cocianni stated that remedial activities at the Site include quarterly monitoring of 27 on-and off-Site groundwater monitoring wells. He noted that the current monitoring frequency may be excessive since groundwater samples from the majority of the 27 monitoring wells have consistently shown, over several quarters, COCs at concentrations below MCLs. Overall, Mr. Cocianni reports that the current monitored natural attenuation is successful. In addition, Mr. Cocianni suggested that PRPs should be allowed to amend the selected remedy sooner than every five years in order to improve cost-effectiveness of the long-term remedy.

<u>Jane Francis</u>: Jane Francis is the Site's Project Manager for WDEQ. Ms. Francis provided responses to the FYR interview questions on July 2, 2014, through email communications. She stated that the Site is clean, well maintained, secure, and that all current uses are appropriate for the Site. She stated that the Site's remedy is successful and current institutional controls are adequate. Ms. Francis reported that WDEQ visits the Site annually to check monitoring wells and general orderliness. She reported that there were no complaints or inquiries about the Site in the past five years.

Jillian Hume: Jillian Hume works with CH2M HILL, the O&M contractor for Dow/DSI. She completed her interview on June 17, 2014. Ms. Hume reports that cleanup, maintenance and reuse activities at the Site are complete. Ongoing remedial activities include groundwater monitoring on 27 wells. She noted that 25 of the 27 wells have consistently tested below MCLs for at least four consecutive quarters. She recommends that these 25 wells be decommissioned since they have met remedial requirements outlined in the Consent Decree. Ms. Hume also recommends removing these monitoring

wells for cost-saving benefits. The remaining two monitoring wells, EPA 1-7 and MW 87-2, have not satisfied the minimum benchmark of four consecutive quarters with COC levels below defined MCLs. PCE concentrations in EPA 1-7 have remained below the MCL for only three consecutive quarters, thus only one more quarter remains. PCE concentrations in MW 87-2 have fluctuated above and below the MCL in the past, and the PCE concentration has only fallen below the MCL for one quarter, thus requiring three more consecutive quarters with stable or improving concentrations. Ms. Hume also suggested updating the current sampling method to a low-flow sampling technique using bladder pumps.

<u>David White</u>: David White works for KMI, one of the PRPs for the Site. Mr. White completed his interview on July 2, 2014, through email communication. Overall, Mr. White believes the remedy is performing as expected. He stated that there have been no effects on the surrounding community for over five years.

<u>Cary Zimmerman</u>: Cary Zimmerman completed his interview on June 12, 2014. He is the Operations Supervisor for Tallgrass Energy. Mr. Zimmerman indicated that EPA is keeping involved parties informed about the Site through progress updates at town meetings. He reports that there have been no unusual activities, trespassing or vandalism at the Site.

Tom Lavin: Tom Lavin is the president of the Brookhurst Improvement and Service District, the Brookhurst subdivision homeowner's association. Mr. Lavin provided his interview question responses during a phone interview conducted on June 20, 2014. Overall, Mr. Lavin has a positive impression of the project and is not aware of any problems on the Site. He indicated that the community previously had a negative impression of the Site. Home and property values in the area initially dropped because of the issues at the Site. However, things have improved since then. Property values have rebounded and most of the new residents in the area are unaware of the Site's history. The Brookhurst community feels well informed regarding the Site's status and remedial progress: however, there is some concern about how EPA will inform them of any new Site information. Community members would prefer that Site information be posted on the public community board. Mail would also be a good way to spread Site information to the neighborhood. EPA can contact Mr. Lavin to post information to the board. He stated that Tallgrass Energy has been great to work with since they took over operations of the active facility. They have a new plant manager who has really turned the plant around. A community member recently thought their well was contaminated due to Site activities. The company voluntarily tested the well, at their expense, to assure the resident the water is safe.

<u>Phil Hinds</u>: Phil Hinds is the Mayor of the Town of Evansville, Wyoming. Mr. Hinds provided his interview question responses during a phone interview conducted on June 30, 2014. Evansville Town Clerk, Janelle Underwood, also participated in the call, but did not provide any responses. Mayor Hinds is aware of the former environmental issues at the Site and the cleanup activities that have taken place. Overall, he has a positive impression of the project, feels well informed regarding the Site and remedial progress,

and is not aware of any problems on the Site. Mayor Hinds is not aware of any changes to state laws or local regulations that might affect the protectiveness of the Site's remedy. He suggested that EPA can best provide Site-related information in the future through mail, email or phone.

Sandy Slaymaker: Sandy Slaymaker is the Secretary of the Brookhurst Improvement and Service District. Ms. Slaymaker provided her interview question responses during a phone interview conducted on July 1, 2014. She is aware of the former environmental issues at the Site and the cleanup activities that have taken place, and feels well informed about the Site status. Overall, Ms. Slaymaker has a very positive impression of the project and is not aware of any problems on the Site. She indicated that the Site initially affected the community in a negative way, but not anymore. The best place to post Site-related information in the future would be the public community board at the entrance to the community. She owns a private well, but uses the water only for outdoor uses, such as irrigation. However, she thinks there are people in the community that still use water from their private wells for indoor uses. She also indicated that there is an individual who rents one of the houses in the Brookhurst community who is vocal about his belief that the Site is contaminating his private well. He has posted a sign on his fence stating that his water is contaminated.

Resident: A local resident provided his interview question responses during a phone interview conducted on July 16, 2014. He was not initially aware of the Site, but became aware of it when he pumped up black liquid from his well. He stated that he has not witnessed any cleanup or maintenance activities in the last four years since he has lived near the Site. The resident indicated that EPA has not kept him informed of Site activities, and that the best way EPA can update him in the future about the Site would be by phone. He has a groundwater well on his property, but uses only municipal water for indoor purposes. He would like to be able to use his well water for irrigation of his yard, a garden, or to provide water for his dogs and horses. However, he believes that the Site has contaminated his well water. The resident explained that his well is 26 feet deep. Water pumped from the bottom of the well appears to be fine, but when he moves the pump up to about 20 feet, the well produces thick, black liquid that appears to be half oil and half water. The resident would like someone to test the well water and let him know if it is safe, or if it is contaminated, to what extent. He would like to know if it is safe to use the deeper well water for irrigation purposes. The resident is also concerned that the Site has contaminated the nearby river.

7.0 Technical Assessment

7.1 Question A: Is the remedy functioning as intended by the decision documents?

No. The review of Site documents, ARARs, risk assumptions, groundwater sampling data and the Site inspection indicate that although the remedy is primarily functioning as intended by the Site's RODs, the pump-and-treat system, which started during the removal action and was subsequently selected to continue in the OU1 ROD, was stopped in 2001, prior to reaching cleanup levels. Quarterly groundwater monitoring continues.

Although performance standards for the VHO plume have not yet been met, COC concentrations are declining and detections of PCE above the MCL only occur sporadically in a limited number of wells. EPA is currently reviewing the groundwater data to determine if any change is needed to the remedy at this portion of the Site.

Institutional controls are in place to ensure that the KMI and Dow/DSI properties remain in industrial use, to restrict the use of drinking water beneath the industrial properties until drinking water standards are met, and to regulate handling of excavated soils on the KMI and Dow/DSI properties.

7.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels and remedial action objectives (RAOs) used at the time of remedy selection still valid?

Yes. The exposure assumptions, toxicity data and cleanup levels remain valid. Although the MCL for toluene became more stringent since the OU1 ROD, the analysis of the last 13 years of historical data (2000 to 2013) indicates that none of the toluene concentrations exceed the MCL. In fact, BTEX levels are predominantly below detection with isolated detections well below the current MCLs. As a result, BTEX is no longer included in the quarterly monitoring as of the third quarter 2013 progress report.

Although toxicity values have changed for two of the groundwater COCs, TCE and PCE, the change in toxicity does not affect the cleanup levels for these compounds because the cleanup levels are the MCLs, which have not changed for these compounds. The potential for indoor air contamination due to vapor intrusion from the subsurface was evaluated as part of the 2010 ROD and determined to be insignificant. Since 2010, new supplemental guidance for preparing FYRs was published to address the vapor intrusion exposure pathway; the guidance re-emphasizes the importance of using multiple lines of evidence to adequately evaluate the vapor intrusion pathway and the associated potential risks to human health. Therefore, the vapor intrusion evaluation was revisited as part of this FYR to determine if the 2010 vapor intrusion evaluation risk conclusions remain valid. Based on a revised vapor intrusion evaluation (Appendix F), the cancer risks are within EPA's risk management range of 10⁻⁶ to 10⁻⁴ for both the historical and current vapor intrusion analysis; further, the cumulative noncancer hazard index is below the threshold of 1.0. Based on a review of historical data, the concentrations of COCs in groundwater have continued to decline with the most recent four quarters of data representing concentrations close to detection limits, except for PCE, which still is slightly above the MCL of 5 µg/L but much lower than historic values. Since groundwater sources have been remediated, the continued decline in groundwater concentrations is expected. Based on historical trends, remediation history at the Site and the results of the screening level vapor intrusion analysis, the remedy continues to be protective for the vapor intrusion exposure pathway.

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¹ EPA. 2012. Assessing Protectiveness at Sites for Vapor Intrusion Supplement to the "Comprehensive Five-Year Review Guidance" OSWER Directive 9200.2-84. November. http://www.epa.gov/superfund/cleanup/postconstruction/pdfs/VI_FYR_Guidance-Final-11-14-12.pdf

EPA developed Site action levels for soil in 1988 to support expedited removal actions. Although the OU2 ROD indicated that these levels are not equivalent to the current regional screening levels (RSLs) for soils, EPA believes Site risks to potentially-exposed individuals are acceptable based on industrial exposure. Because toxicity values have changed since 1988, the action levels were compared to EPA's RSLs based on industrial exposure. As demonstrated in Table 7, the cumulative industrial risks are within EPA's risk management range of 1 x 10⁻⁶ to 1 x 10⁻⁴ and the noncancer hazard index (HI) is below 1.0. These results indicate that the soil cleanup levels remain valid. Contaminated soils were removed to achieve industrial-based cleanup levels.

Table 7: Risk Evaluation of Soil Cleanup Levels

COC	Soil Action Level Based on		crial Soil RSLs g/kg) ^b	Industrial Risk		
	Industrial Exposure (mg/kg) ^a	1 x 10 ⁻⁶ Risk-based	Noncancer HI = 1.0	Cancer Risk ^c	Noncancer HI ^d	
Tetrachloroethene	1.4	100	390	1.4 x 10 ⁻⁸	0.004	
Trichloroethene	0.5	6	19	8.3 x10 ⁻⁸	0.03	
1,1,1-Trichloroethane	52		36,000		0.001	
Benzene	0.082	5.1	420	1.6 x 10 ⁻⁸	0.0002	
Ethylbenzene	325	25	20,000	1.3 x 10 ⁻⁵	0.02	
Toluene	107		47,000		0.002	
Xylenes	176		2,500		0.07	
Total				1.3 x 10 ⁻⁵	0.1272	

- a. The highest removal action cleanup level reported in the OU2 ROD.
- b. EPA RSLs, dated May 2014, available at (accessed 6/11/2014).
- c. Cancer risks calculated using the following equation, based on the fact that RSLs are derived based on 1 x 10^{-6} risk: Cancer risk = (Cleanup Level ÷ Soil RSL) × 10^{-6} .
- Noncancer HI calculated using the following equation, based on the RSLs derived from a HI of 1: Noncancer HI = (Cleanup Level ÷ Soil RSL).

On November 21, 2013, EPA requested that a subset of monitoring wells be sampled to determine if 1,4-dioxane is present in Site groundwater because it has been used as a stabilizer in chlorinated solvents (primarily in 1,1,1-trichloroethane). 1,4-Dioxane has been identified by EPA as an emerging COC, but the BRA did not evaluate this compound. The PRP reviewed historical groundwater concentrations at the Site and identified select monitoring wells for a one-time 1,4-dioxane sampling and analysis. On January 22, 2014, the PRP submitted the *Proposed Amendment to Groundwater Monitoring Sampling Program* in a letter to EPA, which is pending approval. Once sampling occurs, EPA will review the results. In the meantime, the remedy in place ensures that there will be no completed exposure pathway.

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² EPA. 2009. Fact Sheet: *Emerging Contaminant* – 1,4-Dioxane. Office of Solid Waste and Emergency Response. EPA 505-F-09-006. September, http://www.clu-in.org/download/contaminantfocus/epa505f09006.pdf

7.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No. No additional information has come to light that could call into question the protectiveness of the remedy. However, a local resident has made claims regarding the quality of the water from his private well. These claims do not currently line up with other data and findings related to the Site. The resident is currently connected to municipal water and there are currently no completed exposure pathways. However, EPA is looking into the resident's claims.

7.4 Technical Assessment Summary

Although the remedy is primarily functioning as intended by the Site's RODs, the pump-and-treat system, which started during the removal action and was subsequently selected to continue in the OU1 ROD, was stopped in 2001, prior to reaching cleanup levels. Institutional controls are in place to ensure that the KMI and Dow/DSI properties remain in industrial use, to restrict the use of drinking water beneath the industrial properties until drinking water standards are met, and to regulate handling of excavated soils on the KMI and Dow/DSI properties. Groundwater monitoring continues. Although performance standards for the VHO plume have not yet been met, PCE is the only COC that continues to be detected above its MCL; detections of PCE are sporadic and occur in only a limited number of wells. EPA is currently reviewing the groundwater data to determine if any change is needed to the remedy at this portion of the Site.

1,4-Dioxane, which has been identified by EPA as an emerging COC, was not evaluated during the RI and has not been tested for at the Site. In order to ensure long-term protectiveness, sampling should occur to evaluate the presence of the contaminant.

8.0 Issues

Table 8 summarizes the current Site issues.

Table 8: Current Site Issues

Issue	Affects Current Protectiveness?	Affects Future Protectiveness?
1,4-Dioxane was not tested for during the RI, but may be a COC due to materials processed on Site.	No	Yes
The pump-and-treat system selected in the OU1 ROD was stopped in 2001, prior to reaching cleanup levels.	No	Yes

9.0 Recommendations and Follow-up Actions

Table 9 provides recommendations to address the current site issues.

Table 9: Recommendations to Address Current Site Issues

Issue	Recommendation / Follow-Up Action	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness?	
					Current	Future
1,4-Dioxane was not tested for during the RI, but may be a COC due to materials processed on Site.	Conduct groundwater sampling for 1,4- dioxane.	PRP	EPA	9/30/2015	No	Yes
The pump-and-treat system selected in the OU1 ROD was stopped in 2001, prior to reaching cleanup levels.	Evaluate current groundwater data and the need for additional groundwater sampling, considering the cessation of the pump-and-treat system in 2001.	EPA	EPA	9/30/2015	No	Yes

10.0 Protectiveness Statements

The remedy at OU1 currently protects human health and the environment. Institutional controls are in place restricting the use of drinking water beneath the industrial properties until drinking water standards are met. However, to better determine the protectiveness of the remedy in the long term, groundwater sampling for 1,4-dioxane is needed. In order to ensure long-term protectiveness, the EPA should also evaluate current groundwater data and the need for additional groundwater sampling, considering the cessation of the pump-and-treat system in 2001.

The remedy at OU2 is protective of human health and the environment. The soil has been cleaned to industrial standards and institutional controls are in place to ensure that the KMI and Dow/DSI properties remain in industrial use and to regulate handling of excavated soils on the KMI and Dow/DSI properties.

The remedial action at OU2 is protective. However, because the remedial action at OU1 currently protects human health and the environment, the Site is currently protective of human health and the environment in the short term.

11.0 Next Review

The next FYR will be due within five years of the signature/approval date of this FYR.

Appendix A: List of Documents Reviewed

Action Memorandum: Removal Request for the Brookhurst Subdivision, Natrona County, Wyoming. Prepared by EPA Region 8. January 7, 1987.

Consent Decree. United States of America, Plaintiff v. The Dow Chemical Company, Dowell Schlumberger, Inc., and Knenergy, Inc., Defendants. October 3, 1991.

First Five-Year Review Report for Mystery Bridge Road/U.S. Highway 20 Superfund Site. Prepared by EPA Region 8. February 4, 1999.

Second Quarter Progress Report – 2013. Prepared by Deuell Environmental, LLC. June 26, 2013.

Third Quarter Progress Report – 2013. Prepared by Schlumberger Technology Corporation. September 30, 2013.

Fourth Quarter Progress Report – 2013. Prepared by Schlumberger Technology Corporation. January 22, 2014.

First Quarter Progress Report – 2014, Prepared by Schlumberger Technology Corporation. April 29, 2014.

Iscoconcentration Map of PCE and Benzene, Brookhurst Site, Casper, Wyoming. Prepared by Deuell Environmental, LLC. 1993.

Iscoconcentration Map of PCE and Benzene, Brookhurst Site, Casper, Wyoming. Prepared by Deuell Environmental, LLC. 2010.

Proposed Amendment to Groundwater Monitoring Sampling Program. Prepared by Schlumberger Technology Corporation. January 22, 2014.

Proposed Plan for Mystery Bridge Superfund Site, Operable Unit 2 Informational Release. Prepared by EPA Region 8. August 2010.

Record of Decision, Mystery Bridge Road/U.S. Highway 20, OU1. Prepared by EPA Region 8. September 24, 1990.

Record of Decision, Mystery Bridge Road/U.S. Highway 20, OU2. Prepared by EPA Region 8. September 30, 2010.

Second Five-Year Review Report for Mystery Bridge Road/U.S. Highway 20 Superfund Site. Prepared by EPA Region 8. September 27, 2004.

Technical Memorandum Evaluating Vapor Intrusion (Revision 2), RE: Dow/Dowell Brookhurst/Mystery Bridge Site. Prepared by Deuell Environmental, LLC for EPA Region 8. August 3, 2010.

Technical Memorandum RE: Revised Summary of Vapor Intrusion Modeling for the Kinder Morgan Portion of the Mystery Bridge Superfund Site. Prepared by Golder Associates, Inc. for EPA Region 8. August 5, 2010.

Technical Memorandum RE: Summary of Remediation Actions Related to Operable Unit 2 (OU2) at the Casper Compressor Station. Prepared by Golder Associates, Inc. for EPA Region 8. June 22, 2010.

Third Five-Year Review Report for Mystery Bridge Road/U.S. Highway 20 Superfund Site. Prepared by EPA Region 8. September 30, 2009.

Appendix B: Press Notice

Elm St. • Rawlins, WY 82301 No 11 W ur 17 24.2221 • www.imhcc.com 084 Public Notices EPA Five-Year Review Planned for the Mystery Bridge Road/U.S. Highway 20 Superfund Site ≣R 20 Superfund SRe
The U.S. Environmental Protection
Agency (EPA) is conducting the
fourth five-year review of remedial
actions performed under the
Superfund program at the Mystery
Bridge Road/U.S. Highway 20
Superfund site in Natrona County,
northeast of Casper, Wyoming,
The purpose of the five-year review
is to make sure the selected
cleanup actions remain protective
of human health and the
environment. The five-year review
is scheduled for completion by
September 2014.
The site includes former industrial 231 ar wa er su vie Bi logET MW ar Ci bei ing f in t a for September 2014.
The site includes former industrial facilities for Kinder Morgan Energy Partners, L.P. (KMI) and Dow Chemical Company/Dowell Schlumberger, Inc. (DOW/DSI). The surrounding residential area consists of 125 lots ranging from 2 to 5 acres in size.

EPA, in cooperation with the Wyoming Department of Environmental Quality (WDEQ), has taken steps to provide clean ak Pu he tin wi (3 88 or rig we cs Wyoming Department or Environmental Quality (WDEQ), has taken steps to provide clean drinking water to affected residents in the nearby Brookhurat subdivision. The majority of cleanup work at the site is complete. In addition to continued monitoring of site conditions, use restrictions were put in place for the industrial facilities to ensure the long-term protectiveness of human health and the environment. More information is available at the site's information repository at the Natrona County Public Library, 307 East 2nd St., Casper, WY 82601, 307-327-4935 and on EPA's website at: www2.epa.gov/region8/mystery -bridge-rd-us-highway-20. lme led AL, t, at gi ni W or fu or with av A pr at vith ar. EPA and WDEQ invite community participation in the five-year review process: Community members are encouraged to contact EPA and WDEQ staff with any information that may help the Apager wake its detarmination. nc bi es les su les an Vi for af Th ¥r 1K, Agency make its determination regarding the protectiveness and effectiveness of the remedies at the site. Pγ. n EPA Region 8 to 17 Frances Costanzi Project Manager Phone: 303-312-6571 Email: costanzi.frances@epa.gov as for sh ds ec (3 Cynthia. Peterson Community Involvement Coordinator Phone: 303-312-6879 Email: peterson.cynthia@epa.gov 8u Bo ж, Ing, Wyoming Department of Environmental Quality by ny whof art er ac le: a) 618 Jane Francis Water Quality Division Phone: 307-777-7092 Email: jfranc@wyo.gov y! n, m, 091 Advertisement For Bids

B-1

Appendix C: Interview Forms

Mystery Bridge Road/U.S. Highway 20 Superfund Site

Five-Year Review Interview Form

Site Name: Mystery Bridge Road/U.S. EPA ID No.: WYD981546005

Highway 20

Subject Name: <u>Virgilio Cocianni</u> Affiliation: <u>Schlumberger Technology</u>

Corporation

Subject Contact <u>Cocianni-v@slb.com</u>

Information:

Time: <u>09:00 a.m.</u> Date: <u>06/16/2014</u>

Interview Format (circle one): Email

Interview Category: Potentially Responsible Parties (PRPs)

1. What is your overall impression of the remedial activities at the Site?

Remedial activities included quarterly monitoring at 27 on-site and off-site wells. This amount of monitoring is excessive, particularly given that most wells have been below standards for many quarters.

2. What have been the effects of this Site on the surrounding community, if any?

None to my knowledge.

3. What is your assessment of the current performance of the remedy in place at the Site?

The current performance of the remedy is successful to demonstrate that natural attenuation has consistently reduced concentrations of COCs in all but one monitoring well. The one remaining well has been hovering around the MCL for many years.

4. Are you aware of any complaints or inquiries regarding environmental issues or the remedial action from residents since implementation of the cleanup?

None to my knowledge.

5. Do you feel well-informed regarding the Site's activities and remedial progress? If not, how might EPA convey site-related information in the future?

Yes.

6. Do you have any comments, suggestions or recommendations regarding the management or operation of the Site's remedy?

The PRPs should be allowed to reduce the monitoring frequency as allowed in the ROD sooner than every 5 years to maintain the cost effectiveness of the remedy.

Mystery Bridge Road/U.S. Highway 20 Superfund Site

Five-Year Review Interview Form

Site Name: Mystery Bridge Road/U.S. EPA ID No.: WYD981546005

Highway 20

Subject Name: <u>Jane Francis</u> Affiliation: <u>Wyoming Department of</u>

Environmental Quality

Subject Contact <u>jane.francis@wyo.gov</u>

Information:

Time: Date: <u>07/02/2014</u>

Interview Format (circle one): Email

Interview Category: State Agency

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

The sites that make up the property involved in this project are clean, well maintained and secure. The use of the properties is appropriate at this time.

2. What is your assessment of the current performance of the remedy in place at the Site?

The performance of the current remedy is successful at this time.

3. Are you aware or any complaints or inquiries regarding site-related environmental issues or remedial activities from residents in the past five years?

I am not aware of any complaints or inquiries regarding this site from any residents, businesses, etc. related to this site.

4. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities.

WDEQ visits sites on an annual basis to make sure monitoring wells are still in good condition and to check on the orderliness of the property. These two sites satisfied any concern WDEQ had when I visited the sites.

5. Are you aware of any changes to state laws that might affect the protectiveness of the Site's remedy?

I am not aware of any changes to state laws that could affect the remedies at these sites.

6. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues?

Institutional Controls at this site are adequate.

7. Are you aware of any changes in projected land use(s) at the Site?

I am not aware of any changes in land use related to these sites.

8. Do you have any comments, suggestion or recommendations regarding the management or operation of the Site's remedy?

I do not have any concerns related to the management or operation of the sites' remedies.

Five-Year Review Interview Form

Site Name: Mystery Bridge Road/U.S. EPA ID No.: WYD981546005

Highway 20

Subject Name: <u>Jillian Hume</u> Affiliation: <u>CH2M HILL</u>

Subject Contact jhume@ch2m.com

Information:

Time: 14:00 Date: 06/17/2014

Interview Format (circle one): Email

Interview Category: O&M Contractor

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

Cleanup, maintenance, and reuse activities have been completed at the site. Quarterly groundwater monitoring is the only ongoing activity, and has been for many years to assess the condition of the groundwater quality at the site.

2. What is your assessment of the current performance of the remedy in place at the Site?

Performance of the remedy has been successful and has been demonstrated through required sampling of the 27 onsite and offsite monitoring wells. Twenty-five of the monitoring wells have met the cleanup goal of at least four consecutive quarters below maximum contaminant levels (MCLs).

3. What are the findings from the monitoring data? What are the key trends in contaminant levels that are being documented over time at the Site?

Twenty-five of the 27 monitoring wells have met the cleanup goal of at least four consecutive quarters below MCLs, as specified in the Consent Decree. For the remaining two monitoring wells (EPA1-7 and MW87-2), MCLs have been met for contaminants of concern (COCs) except for tetrachloroethene (PCE). PCE concentrations at monitoring well EPA1-7 have decreased over time with concentrations below the MCL for three consecutive quarters, requiring one more quarter to meet the cleanup goal. PCE concentrations at monitoring well MW87-2 have been fluctuating slightly above and below the MCL with a concentration below the MCL for one quarter, requiring three more quarters to meet the cleanup goal.

4. Is there a continuous on-site O&M presence? If so, please describe staff responsibilities and activities. Alternatively, please describe staff responsibilities and the frequency of site inspections and activities if there is not a continuous on-site O&M presence.

There is no O&M presence. Site activities occur on a quarterly basis to conduct groundwater monitoring.

5. Have there been any significant changes in site O&M requirements, maintenance schedules or sampling routines since start-up or in the last five years? If so, do they affect the protectiveness or effectiveness of the remedy? Please describe changes and impacts.

No O&M activities have occurred in the last five years.

6. Have there been unexpected O&M difficulties or costs at the Site since start-up or in the last five years? If so, please provide details.

No.

7. Have there been opportunities to optimize O&M activities or sampling efforts? Please describe changes and any resulting or desired cost savings or improved efficiencies.

For O&M activities - N/A.

For routine groundwater monitoring, 25 of the 27 monitoring wells have been recommended for removal from the monitoring well program because COCs have met the cleanup goal of at least four consecutive quarters below MCLs. Analytical results from 20 monitoring wells have been below the clean-up goals for more than eight consecutive quarters. There are significant desired cost savings that could be realized if monitoring requirements are made compliant with the Consent Decree. Additionally, a low-flow sampling method using bladder pumps has been recommended over using bailers to sample groundwater at the site.

8. Do you have any comments, suggestions or recommendations regarding O&M activities and schedules at the Site?

The requested modifications to the groundwater sampling plan should be approved to reduce the number of wells that are sampled and to update the sampling method.

Five-Year Review Interview Form

Site Name: Mystery Bridge Road/U.S. EPA ID No.: WYD981546005

Highway 20

Subject Name: <u>David White</u> Affiliation: <u>Kinder Morgan</u>
Subject Contact <u>David white@kindermorgan.com</u> 713-369-9556

Information:

Time: <u>11:00 a.m.</u> Date: <u>07/02/2014</u>

Interview Format (circle one): Email

Interview Category: Potentially Responsible Parties (PRPs)

1. What is your overall impression of the remedial activities at the Site?

Site should be closed.

2. What have been the effects of this Site on the surrounding community, if any?

Nothing for 5 plus years.

3. What is your assessment of the current performance of the remedy in place at the Site?

Remedy is performing as expected.

4. Are you aware of any complaints or inquiries regarding environmental issues or the remedial action from residents since implementation of the cleanup?

None that I am aware of.

5. Do you feel well-informed regarding the Site's activities and remedial progress? If not, how might EPA convey site-related information in the future?

Just need to complete the process.

6. Do you have any comments, suggestions or recommendations regarding the management or operation of the Site's remedy?

No.

Five-Year Review Interview Form

Site Name: Mystery Bridge Road/U.S. EPA ID No.: WYD981546005

Highway 20

Subject Name: Cary D. Zimmerman Affiliation: Tallgrass Energy

Subject Contact cary.zimmerman@tallgrassenergylp.com

Information:

Time: <u>11:00 a.m.</u> Date: <u>06/12/2014</u>

Interview Format (circle one): Email

Interview Category: Current Property Owner and Business Operator

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

Yes.

2. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

Cleaning has been completed and awaiting closure.

3. What have been the effects of this Site on the surrounding community, if any?

Awareness of issue and the cleanup efforts taken.

4. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

None.

5. Has EPA kept involved parties informed of activities at the Site? How can EPA best provide site-related information in the future?

Yes with Town Meetings and progress of cleanup efforts.

6. Do you own a private well in addition to or instead of accessing city/municipal water supplies? If so, for what purpose(s) is your private well used?

No private wells.

7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?

Just waiting on the closure of this matter.

Five-Year Review Interview Form

Site Name: Mystery Bridge Road/U.S. EPA ID No.: WYD981546005

Highway 20

Interviewer Name: Cynthia Peterson Affiliation: EPA CIC

Subject Name: Tom Lavin Affiliation: Brookhurst Improvement

and Service District

Time: 2:30 p.m. Date: 06/20/2014

Interview Format (circle one): Electronic mail Phone In Person

Interview Category: Resident - President of the Brookhurst Improvement and Service

District

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

Yes.

2. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

I have an overall good impression of the site and the cleanup. It's probably a safer place than most. I haven't noticed any real problems in the last twenty years.

3. What have been the effects of this Site on the surrounding community, if any?

Previously, the community had a negative impression of the site; there was a negative stigma attached to it. Home and property values in the area initially dropped because of the issues at the site. Things have improved since then. Property values have rebounded and most of the new residents in the area are unaware of the site's history.

4. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

I'm not aware of any problems.

5. Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future?

Yes, EPA has kept the community informed of site activities. However, community members are somewhat concerned about how EPA will inform them of any new site information. Community members would prefer that site information be posted on the public community board. It's a place where the entire community can easily see the information. Mail would

also be a good way to spread site information to the neighborhood. EPA can contact me to post information to the board.

6. Do you own a private well in addition to or instead of accessing city/municipal water supplies? If so, for what purpose(s) is your private well used?

Yes, I own a private well. We use the municipal water for all indoor uses, and the well for outdoor uses, such as watering plants. However, a neighbor refused to use the municipal water and continued to use their private well.

7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?

We really haven't heard of any problems related to the site. People don't really talk about it much anymore. After a while, the community realized that the business didn't contaminate the site on purpose. The public impression of the site is much better now. The onsite business has been great to work with since the new merger. They have a new plant manager who has really turned the plant around. The business wants to make sure it acts as a good neighbor. They attend Brookhurst Improvement and Service District meetings, they maintain the site wonderfully, and they're looking at the possibility of building a greenbelt in between the facility and the subdivision. There's been great open communication between the new plant manager and the community. A community member recently thought their well was contaminated due to site activities. The company voluntarily tested the well, at their expense, to assure the resident their water is safe. The test proved the water was safe.

Five-Year Review Interview Form

Site Name: Mystery Bridge Rd./U.S. EPA ID No.: WYD981546005

Highway 20 Superfund Site

Interviewer Name: Cynthia Peterson Affiliation: EPA CIC

Subject Name: Phil Hinds Affiliation: Mayor of Evansville, WY Janelle Underwood

Town Clerk of Evansville,

WY

Time: 9:00 a.m. Date: 06/30/2014

Interview Format (circle one): In Person Mail Other: **Phone**

Interview Category: Local Government – Evansville Mayor

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

Yes.

2. Do you feel well-informed regarding the Site's activities and remedial progress? If not, how might EPA convey site-related information in the future?

Yes.

3. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

No.

4. Are you aware of any changes to state laws or local regulations that might affect the protectiveness of the Site's remedy?

No.

5. Are you aware of any changes in projected land use(s) at the Site?

No.

6. Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future?

Yes. EPA can best provide site-related information through mail, email or phone.

- 7. Do you have any comments, suggestions or recommendations regarding the project?

 No.
- 8. Can you recommend anyone else who may have site-related information they would like to share as part of the Five Year Review Process?

It may be helpful to speak with someone from Sinclair Oil, as they own much of the site property.

Five-Year Review Interview Form

Site Name: Mystery Bridge Road/U.S. EPA ID No.: WYD981546005

Highway 20

Interviewer Name: <u>Cynthia Peterson</u> Affiliation: <u>EPA CIC</u>

Subject Name: <u>Sandy Slaymaker</u> Affiliation: <u>Brookhurst Improvement</u>

and Service District

Time: 2:00 p.m. Date: 07/01/2014

Interview Format (circle one): Electronic mail Phone In Person

Interview Category: Resident – Secretary of the Brookhurst Improvement and Service

District

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

Yes.

2. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

I have a very good impression of the site and the cleanup.

3. What have been the effects of this Site on the surrounding community, if any?

Previously, the site negatively affected the community, but not anymore.

4. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

No.

5. Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future?

Yes, EPA has kept the community informed of site activities. EPA has called me in the past to notify me of upcoming site reviews. The best place to post site-related information in the future would be the public community board at the entrance to the community. EPA can contact me to post information to the board.

6. Do you own a private well in addition to or instead of accessing city/municipal water supplies? If so, for what purpose(s) is your private well used?

Yes, I own a private well. We use the municipal water for all indoor uses, and the well for outdoor uses, such as irrigation. However, there are people in the community that still use water from their private wells for indoor uses.

7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?

It's a shame that Sinclair Oil isn't allowed to sell any of their site parcels, even though it's been cleaned up. Local people who have lived in the area for a long time would like the opportunity to purchase some of the land, but that's not an option.

There's an individual who rents one of the houses in the Brookhurst community who is vocal about his belief that the site is contaminating his well water. He's posted a sign on his fence stating that his water is contaminated.

Five-Year Review Interview Form

Site Name: Mystery Bridge Road/U.S. EPA ID No.: WYD981546005

Highway 20

Interviewer Name: Cynthia Peterson Affiliation: EPA CIC

Subject Name: Resident Affiliation: None – local resident

Subject Contact N/A

Information:

Time: <u>6:00 p.m.</u> Date: <u>07/16/2014</u>

Interview Format (circle one): Electronic mail Phone In Person

Interview Category: Resident

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

I'm aware of the site, but I haven't seen any cleanup in the four years I've lived here. I wasn't initially aware of the site, but became aware of it when I wanted to use my well water. The site has contaminated my well.

2. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

I haven't seen any cleanup or site maintenance.

3. What have been the effects of this Site on the surrounding community, if any?

The site has contaminated my well. My well is 26 feet deep. When the pump is at the bottom of the well, the water looks fine. However, when I pull the pump up to about 20 feet, what come out looks like its half water and half black oil.

4. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

No.

5. Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future?

I've not been kept informed of activities at the site. The best way for EPA to contact me about the site would be by phone.

6. Do you own a private well in addition to or instead of accessing city/municipal water supplies? If so, for what purpose(s) is your private well used?

Yes, I own a private well, but I use municipal water for indoor uses. I'm not concerned about the municipal water. I want to be able to use the well water to irrigate my property, to water a garden, or provide water for my dogs and horses. I can't use the water because it's contaminated. I'm concerned that the water would harm my animals and contaminate the surface of the ground if I used it for irrigation.

7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?

I'm not sure why my well water is contaminated if the site is cleaned up. Even though the water from the deep part of the well looks clean, I'm concerned that the contaminants from the black oily water above it has contaminated it in some way. I'd like to know how bad the contamination is. Is it safe to use the deeper water from my well for irrigation? Also, I live right next to the river. If my well water is black and oily, isn't that contamination affecting the river too? People I know think the river is so contaminated that they won't fish in it.

8. How are you planning to address the contamination?

It would be nice is someone would do something to address my contaminated well water.

9. Is there a color or odor to your well water?

The water from higher up in the well is thick, black and oily. I haven't noticed a smell.

10. Do you pump up oil every time you move the well pump?

No. The water deeper in the well seems to be fine. But I'm concerned that if I pump too much of the clear water out, I'll start pulling up the black water.

11. Have you had your well water tested?

No, but I'd like to have it tested.

Appendix D: Site Inspection Checklist

FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST								
I. SITE INFORMATION								
Site name: Mystery Bridge Road/U.S. Highway 20 Superfund Site	Date of inspection: June 3, 2014							
Location and Region: Evansville, WY Region 8	EPA ID: WYD981546005							
Agency, office, or company leading the five-year review: EPA Region 4	Weather/temperature: Partly Cloudy Upper 70's							
Remedy Includes: (Check all that apply) ☐ Landfill cover/containment ☐ Access controls ☐ Institutional controls ☐ Groundwater pump-and-treatment ☐ Surface water collection and treatment ☐ Other	☐ Monitored natural attenuation☐ Groundwater containment☐ Vertical barrier walls							
Attachments:	☐ Site map attached							
II. INTERVIEWS	(Check all that apply)							
1. PRP representative Virgilio Cocianni Name Interviewed □ at site □ by email □ by phone Problems, suggestions; □ Report attached Appendi	Schlumberger Technology Corporation Title Phone no x C							
2. PRP representative David White Name	KMI 7/2/2014 Title Date Phone no.							
3. O&M staff Jillian Hume Name Interviewed ☐ at site ☒ at office ☐ by phone Problems, suggestions; ☒ Report attached Append								
	gencies (i.e., State and Tribal offices, emergency response th or environmental health, zoning office, recorder of fill in all that apply.							
Problems, suggestions; Report attached See App	WDEQ 7/2/2014 Agency Date Phone noendic C ed Local residential interviews were conducted with home							
owner association officials and other local re								

	III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)									
1.	O&M Documents									
	O&M manual	Readily available	Up to date	N/A						
	As-built drawings	Readily available	Up to date	\boxtimes N	J/A					
	☐ Maintenance logs	Readily available	Up to date	\boxtimes N	J/A					
	Remarks:									
2.	Site-Specific Health and S	Safety Plan	Readily available	Up to date	⊠ N/A					
	Contingency plan/emerg	gency response	Readily available	Up to date	⊠ N/A					
	Remarks:									
3.	O&M and OSHA Trainin	g Records	Readily available	Up to date	N/A					
	Remarks:									
4.	Permits and Service Agre	ements								
	☐ Air discharge permit		Readily available	Up to date	N/A					
	☐ Effluent discharge		Readily available	Up to date	N/A					
	☐ Waste disposal, POTW		Readily available	Up to date	N/A					
	Other permits		Readily available	Up to date	N/A					
	Remarks:									
5.	Gas Generation Records		Readily available	Up to date	⊠ N/A					
	Remarks:									
6.	Settlement Monument Re	cords	Readily available	Up to date	N/A					
	Remarks:									
7.	Groundwater Monitoring	Records	Readily available	Up to date	N/A					
	Remarks:									
8.	Leachate Extraction Reco	ords	Readily available	Up to date	N/A					
	Remarks:									
9.	Discharge Compliance Re	ecords								
	☐ Air ☐ Readily available		Up to date	⊠ N/A						
	☐ Water (effluent) ☐ Readily available		Up to date	⊠ N/A						
	Remarks:									
10.	Daily Access/Security Log	gs	Readily available	Up to date	⊠ N/A					
	Remarks: Both the KMI and Dow properties are fenced and secured. The active plant keeps access logs not associatead withthe Superfund site.									

IV. O&M COSTS							
1.	O&M Organization						
	State in-house	Contractor for State					
	PRP in-house	☐ Contractor for PRP					
	☐ Federal Facility in-house	Contractor for Federal Facility					
2.	O&M Cost Records						
	☐ Readily available	Up to date					
Origir	☐ Funding mechanism/agreement in place ☐ Unavailable Original O&M cost estimate \$/year ☐ Breakdown attached						
	Total annual cost by ye	ar for review period if available					
	From January 2009 To December 2013	\$123,000 Breakdown attached					
	Date Date	Total cost					
3.	Unanticipated or Unusually High O&M Cost	s During Review Period					
	Describe costs and reasons: Not applicable						
	V. ACCESS AND INSTITUTIONAL	CONTROLS Applicable N/A					
A. Fen	ncing						
1.	Fencing damaged	on site map					
	Remarks:						
B. Oth	B. Other Access Restrictions						
1.	Signs and other security measures	☐ Location shown on site map ☐ N/A					
	Remarks:						

C. Institutional Controls (ICs)								
1. Implementation and enfo	rcement							
Site conditions imply ICs i	Site conditions imply ICs not properly implemented Yes No N/A							
Site conditions imply ICs r	not being fully enforced		☐ Yes	⊠ No □	N/A			
Type of monitoring (e.g., s	elf-reporting, drive by) Ob	servation during s	ite inspection	<u>on.</u>				
Frequency Every Five Yea	<u>rs</u>							
Responsible party/agency								
Contact	-		mm/dd/y	<u> </u>				
Name	-	Γitle	Date	Ph	one no.			
Reporting is up-to-date			Yes	☐ No	N/A			
Reports are verified by th	e lead agency		Yes	☐ No	N/A			
Specific requirements in o	deed or decision documents	s have been met	Xes	☐ No	N/A			
Violations have been repo	orted		☐ Yes	⊠ No	N/A			
Other problems or sugges	tions: Report attached							
	are adequate	☐ ICs are inade	equate] N/A			
Remarks:								
D. General								
1. Vandalism/trespassing Remarks:	Location shown on sit	te map No	vandalism	evident				
2. Land use changes on site	N/A							
Remarks:	<u> </u>							
3. Land use changes off site	N/A							
Remarks:								
	VI. GENERAL SITE	CONDITIONS						
A. Roads	N/A							
Roads damaged	Location shown on sit	te man Roa	nds adequate	e 🖂	N/A			
Remarks:		p	ios acoquai	- 2	1 - 1/1 -			
B. Other Site Conditions								
Remarks:								
Teoriming.								
VII. LA	ANDFILL COVERS	Applicable	N/A					
	AL BARRIER WALLS			N/A				

	IX. GROUNDW	ATER/SURFACE WATI	ER REMEDIES Applicable N/A
A. Gı	oundwater Extraction	Wells, Pumps, and Pipel	ines
1.	Pumps, Wellhead Plu	ımbing, and Electrical	
	Good condition	All required wells pro	operly operating Needs Maintenance N/A
	Remarks:		
2.	Extraction System Pi	pelines, Valves, Valve Bo	xes, and Other Appurtenances
	Good condition	☐ Needs Maintenance	
	Remarks:		
3.	Spare Parts and Equ	ipment	
	Readily available	Good condition	Requires upgrade Needs to be provided
	Remarks:		
B. Su	rface Water Collection	Structures, Pumps, and	Pipelines
1.	Collection Structures	s, Pumps, and Electrical	
	Good condition	☐ Needs Maintenance	
	Remarks:		
2.	Surface Water Coll	ection System Pipelines, V	Valves, Valve Boxes, and Other Appurtenances
	Good condition	☐ Needs Maintenance	
	Remarks:		
3.	Spare Parts and Equ	ipment	
	Readily available	Good condition	Requires upgrade Needs to be provided
	Remarks:		

C. Tı	reatment System	Applicable	le 🛛 N/A						
1.	Treatment Train (Che	eck components th	at apply)						
	☐ Metals removal	Oil/wa	ater separation	Bior	remediation				
	☐ Air stripping	Carbo	n adsorbers						
	Filters								
	Additive (e.g., chel	ation agent, floccu	lent)						
	Others								
	Good condition	☐ Needs	Maintenance						
	Sampling ports properly marked and functional								
	Sampling/maintenance log displayed and up to date								
	Equipment properly identified								
	Quantity of groundwater treated annually								
	Quantity of surface water treated annually								
	Remarks:								
2.	Electrical Enclosures	and Panels (prope	erly rated and functi	onal)					
	□ N/A	Good condition	☐ Needs	Maintenance					
	Remarks:								
3.	Tanks, Vaults, Storag	ge Vessels							
	□ N/A □ Goo condition		Proper secondary	containment	☐ Needs Maintenance				
	Remarks:								
4.	Discharge Structure a	and Appurtenanc	es						
	□ N/A	Good condition	☐ Needs	Maintenance					
	Remarks:								
5.	Treatment Building(s)							
	□ N/A	Good condition doorways)	on (esp. roof and		☐ Needs repair				
	Chemicals and equi	pment properly sto	ored						
	Remarks:								

6.	Monitoring Wells (pump and	treatment remedy)					
	Properly secured/locked	☐ Functioning	☐ Routinely sampled	Good condition				
		1 unctioning						
	☐ A11	□ Nanda Mainta		□ NI/A				
	All required wells located	☐ Needs Mainte	enance	□ N/A				
	Remarks:							
D. Mo	onitoring Data							
1.	Monitoring Data							
	☐ Is routinely submitted on tir	ne	Is of acceptable qua	lity				
2.	Monitoring data suggests:							
	☐ Groundwater plume is effect	tively contained	Contaminant concent	rations are declining				
	onitored Natural Attenuation							
1.	Monitoring Wells (natural atte							
	☐ Properly secured/locked	Function	ing Routinely sampl					
	All required wells located	☐ Needs M	aintenance	⊠ N/A				
	Remarks:							
T£ 41		X. OTHER						
II ther	e are remedies applied at the site nature and condition of any							
	extraction.	.,	1	1				
		XI. OVERALL O	DBSERVATIONS					
Α.	Implementation of the Remed							
	Describe issues and observation	-	•					
	Begin with a brief statement of minimize infiltration and gas en		s to accomplish (i.e., to cont	ain contaminant plume,				
	_			TT1 6				
	The Site was well maintained a continue to be maintained for in							
	Dow/DSI property. With one ex							
	locked. All wells in the residential neighborhood were found to be secured and in good condition.							
	Photographs from the site inspe	ection are available	in Appendix E.					
B.	Adequacy of O&M							
	Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.							
	particular, discuss their relationship to the earrest and long-term protectiveness of the remetry.							
C.	See Section 7.1 and 7.2 of the current report. C. Early Indicators of Potential Remedy Problems							
С.	Describe issues and observation			one of O&M or a high				
	frequency of unscheduled repair							
	in the future.							
	None.							
D.	Opportunities for Optimization	on						

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

Revisions to the O&M plan are being considered by EPA.

Site Inspection Team:

Frances Costanzi, EPA
Cynthia Peterson, EPA
Treat Suomi, Skeo Solutions
Alison Frost, Skeo Solutions
Jane Francis, WDEQ
Greg Bloom, Tallgrass Operations
Cary Zimmerman, Tallgrass Operations
David White, KMI
Bill Byrd, Tallgrass Operations
Cathy Barnett, CH2M Hill
Vic Cocianni, Schlumberger
Hoyt Sutphin, CH2M Hill

Appendix E: Photographs from Site Inspection Visit



A sign for the Brookhurst Subdivision.



Sign and entryway to the Tallgrass Energy Partners facility, formerly known as the Kinder Morgan Energy Partners (KMI) facility.



Empty tanks, a formerly contaminated area, at the KMI property.



A former storage building at the KMI property.



A former pit where waste was dumped directly into the ground. This area is now lined with concrete and slopes down at an angle, for approximately 15 feet.



EPA's monitoring well 2-14 outside of the fenced area of the KMI property.



A portion of Elkhorn Creek running through the Tallgrass Facility.



EPA monitoring well 2-1. Homes of the Brookhurst subdivision are visible in the background.



The former truck scale area on the Dow/DSI property. The white building on the right houses the former groundwater pump-and-treat system.

Appendix F: Vapor Intrusion Evaluation

The vapor intrusion pathway was identified as an issue in the 2009 FYR due to the availability of more current methodology for evaluating this exposure pathway. In 2010, one of the PRPs prepared a vapor intrusion evaluation and demonstrated that the risks were within EPA's risk management range of 1 x 10^{-6} to 1 x 10^{-4} and the noncancer hazard indices (HI) were below 1.0. Since 2010, new supplemental guidance for preparing FYRs was published to address the vapor intrusion exposure pathway, which re-emphasized the need to use multiple lines of evidence to adequately evaluate the vapor intrusion pathway and the associated potential risks to human health. The vapor intrusion evaluation conducted in 2010 included assumptions that, along with current EPA guidance, necessitated reevaluating vapor intrusion as part of the current FYR. For example, the exposure point concentration used in the 2010 risk evaluation was based on an average concentration (as represented by the 95 percent upper confidence limit on the mean, UCL95) of data collected from 18 wells over a 9-year period. This does not reflect the data collected since the last FYR and, depending on trends over the 9-year period, may not be representative of concentrations that would be observed during the current FYR time-frame. The 2010 evaluation also used EPA's statistical software package, ProUCL, using one-half the detection limits for chemicals below detection, which is discouraged because ProUCL is capable of handling full detection limits. In addition, for all COCs except PCE, the UCL95 concentrations are deemed statistically unreliable since over 90 percent of the data were below detection.

Due to the inconsistencies observed in the 2010 vapor intrusion analysis with respect to EPA's currently available vapor intrusion guidance, as well as changes in toxicity values for tetrachloroethene and trichloroethene since 2010, the vapor intrusion evaluation was revisited to determine if the 2010 vapor intrusion evaluation risk conclusions remain valid. The vapor intrusion evaluation pathway was revisited using the most current toxicity values and the most recent data collected in the last four quarters and evaluated multiple lines of evidence such as contaminant trends and current site conditions.

Since 2010, EPA has developed a vapor intrusion screening level (VISL) calculator as a tool to prepare screening level vapor intrusion risk evaluations based on conservative default assumptions for residential or industrial land use scenarios; the VISL does not take into account site-specific conditions that would reduce vapor intrusion risks. If the results of the VISL calculator suggest that the vapor intrusion exposure pathway is a concern, then more advanced models as well as additional data may be warranted (e.g., subslab soil vapor, groundwater, indoor air) to determine if the vapor intrusion exposure pathway is a true concern. For this FYR, the most current version of the VISL (version 3.3, incorporating the May 2014 toxicity values) calculator was used assuming a residential land use, groundwater temperature of 12°C (from 2010 vapor intrusion evaluation), and maximum detected concentrations of groundwater COCs detected in the last four quarters of data (first quarter 2014 and 2nd, 3rd and 4th quarters from

F-1

¹ EPA. 2012. Assessing Protectiveness at Sites for Vapor Intrusion Supplement to the "Comprehensive Five-Year Review Guidance" OSWER Directive 9200.2-84. November. http://www.epa.gov/superfund/cleanup/postconstruction/pdfs/VI FYR Guidance-Final-11-14-12.pdf

2013) to reflect current site conditions. The VISL calculator was also used to evaluate the maxima identified in the 2010 vapor intrusion study to evaluate vapor intrusion over time (Attachment 5 of 2010 vapor intrusion study).

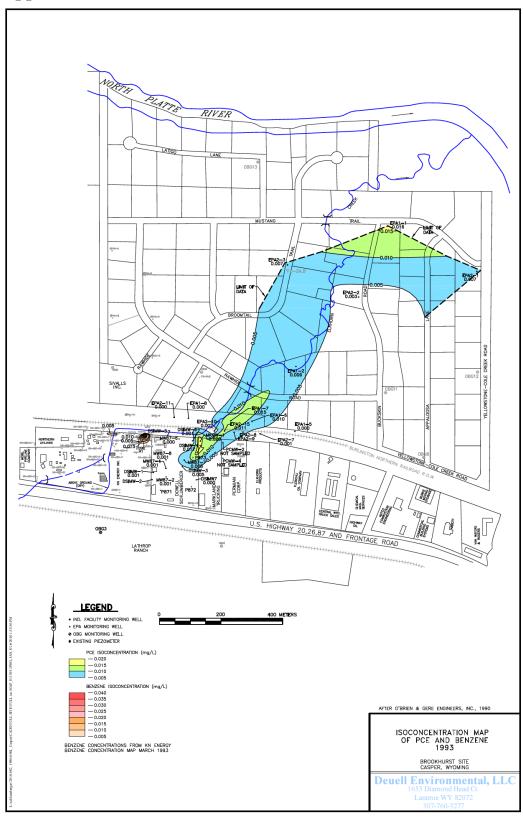
Table F-1 summarizes the screening-level historical and current residential risks for VOCs as calculated by the VISL calculator. As shown in Table F-1, the cancer risks are within EPA's risk management range of 10^{-6} to 10^{-4} for both the historical and current vapor intrusion analysis; further, the cumulative noncancer hazard index is below the threshold of 1.0. Based on a review of historical data, the concentrations of COCs in groundwater have continued to decline, with the most recent four quarters of data representing concentrations close to detection limits except for PCE which still is slightly above the MCL of 5 μ g/L but much lower than historic values. Since groundwater sources have been remediated, a continued decline in groundwater concentrations is expected. Based on historical trends, remediation history at the site and the results of the screening level vapor intrusion analysis, the remedy continues to be protective for the vapor intrusion exposure pathway.

Table F-1: Summary of Screening Level Residential Vapor Intrusion Risks based on Historical and Current Concentrations of COCs in the Alluvial Aquifer

COC	Maximum Groundwater Concentration (µg/L)		Histo	rical ^c	Current ^c	
COC	Historical ^a	Current ^b	Cancer Risk	r Noncancer Cancer HI Risk		Noncancer HI
trans-1,2-	1 ^d	1 ^d	e	e	e	e
Dichloroethene						
Tetrachloroethene	28	6.9	9.0 x 10 ⁻⁷	0.23	2.2 x 10 ⁻⁷	0.057
Trichloroethene	2	0.36	8.7 x 10 ⁻⁷	0.2	1.6 x 10 ⁻⁷	0.036
1,1,1-Trichloroethane	1.5	0.22		0.00011		0.000016
1,1-Dichloroethene ^f	3.7	1 ^d		0.012		0.0031
		Total	1.8 x 10 ⁻⁶	0.44	3.8 x 10 ⁻⁷	0.096

- a. Maximum concentration listed in the August 3, 2010 Technical Memorandum prepared by Deuell Environmental, LLC.
- b. Maximum concentration reported in the quarterly monitoring reports for the first quarter of 2014, and 2nd, 3rd and 4th quarters of 2013.
- c. Risk and hazard quotient calculated using EPA's May 2014 VISL calculator. http://www.epa.gov/oswer/vaporintrusion/guidance.html assuming a residential exposure and site groundwater temperature of 12°C.
- d. Below detection. Detection limit of 1 used for calculation.
- e. Inhalation toxicity values have not been established; therefore, risks or HIs could not be estimated.
- f. Not identified as a COC, evaluated because it is monitored as a degradation product of tetrachloroethene.

Appendix G: Groundwater Data



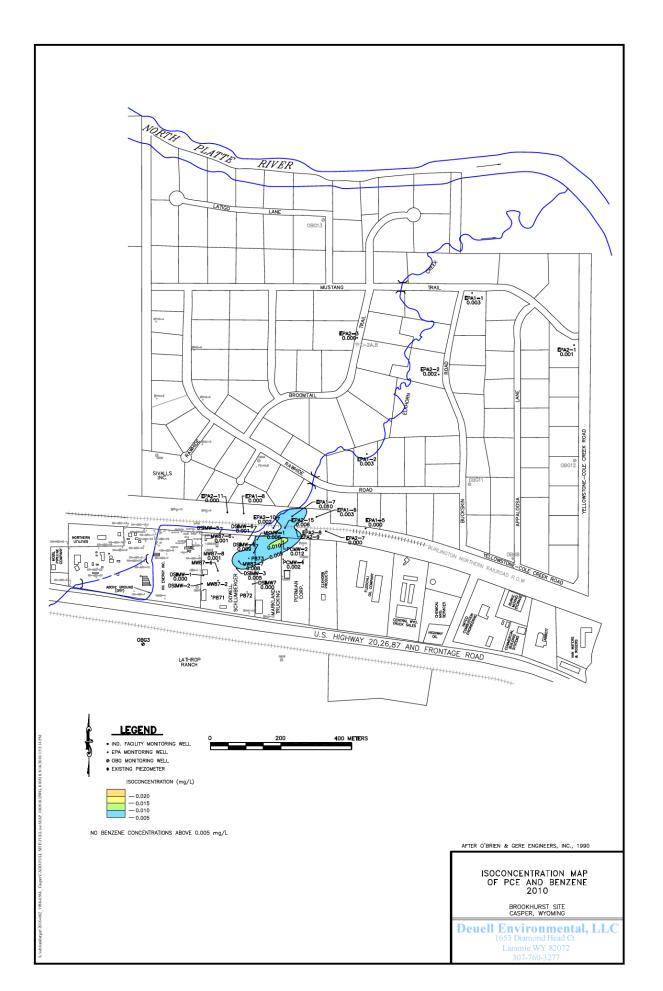


Table G-1: Groundwater Analytical Results, 2009-2014

					COC (mg/L))		
Well	Sample			1,1,1-	trans-1,2-	cis-1,2-		Vinyl
Number	Sample Date	PCE	TCE	TCA	DCE	DCE	1,1-DCE	Chloride
Tulliou	Dute				leral MCL (m			
		0.005	0.005	0.200	0.100	0.070	0.007	0.002
	01/08/09	< 0.001	< 0.001	< 0.001			< 0.001	
	04/10/09	<0.002	<0.002	< 0.002			< 0.002	
	07/06/09	0.0034	0.0005	< 0.001			< 0.001	
DSIMW-1	10/07/09	< 0.001	<0.001	<0.001			< 0.001	
	01/08/10	<0.001	<0.001	<0.001			<0.001	
	04/08/10	<0.001	<0.001	<0.001			< 0.001	
	07/07/10	0.0015	< 0.001	< 0.001			< 0.001	
	10/29/10	< 0.001	< 0.001	< 0.001			< 0.001	
	01/14/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/07/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/29/11	0.0013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/27/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	02/08/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/18/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/19/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/31/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/16/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/10/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/16/13	0.0019	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/21/13	0.0015	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	03/12/14	0.00056J	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/08/09	0.0120	< 0.001	< 0.001			< 0.001	
	04/10/09	0.0280	< 0.001	< 0.001			< 0.001	
	07/06/09	0.0068	< 0.001	< 0.001			< 0.001	
	10/07/09	0.0120	< 0.001	< 0.001			< 0.001	
DSIMW-3	01/08/10	0.0040	< 0.001	< 0.001			< 0.001	
_ 12-2-12-11	04/08/10	0.0023	< 0.001	< 0.001			< 0.001	
	07/07/10	0.0120	< 0.001	< 0.001				
	10/29/10	0.0110	< 0.001	< 0.001			< 0.001	
	01/14/11	0.0061	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/07/11	0.0027	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/29/11	0.0067	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/27/11	0.0064	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	02/08/12	0.0061	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/18/12	0.0019	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/19/12	0.0013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/31/12	0.0026	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/16/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/10/13	0.0029	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/16/13	0.0022	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/21/13	0.0017	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

					COC (mg/L)		
Well	Sample	DCE	TECTE	1,1,1-	trans-1,2-	cis-1,2-	1.1 DCE	Vinyl
Number	Date	PCE	TCE	TCA	DCE leral MCL (n	DCE	1,1-DCE	Chloride
		0.005	0.005	0.200	0.100	0.070	0.007	0.002
	03/12/14	0.0027	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001
	01/08/09	0.0180	< 0.001	< 0.001			< 0.001	
	04/10/09	0.0180	< 0.001	< 0.001			< 0.001	
	07/06/09	0.0032	< 0.001	< 0.001			< 0.001	
	10/07/09	0.0110	< 0.001	< 0.001			< 0.001	
	01/08/10	0.0094	< 0.001	< 0.001			< 0.001	
DSIMW-4	04/08/10	0.0079	< 0.001	< 0.001			< 0.001	
DSIW W -4	07/07/10	0.0097	< 0.001	< 0.001			< 0.001	
	10/28/10	0.0160	< 0.001	< 0.001			< 0.001	
	01/14/11	0.0160	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/07/11	0.0110	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/28/11	0.0053	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/27/11	0.0082	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	02/08/12	0.0054	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/18/12	0.0013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/18/12	0.0024	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/31/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/16/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/10/13	0.0015	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/16/13	0.0025	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/21/13	0.0016	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	03/11/14	0.0017	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/08/09	0.0036	< 0.001	< 0.001			< 0.001	
	04/10/09	0.0037	< 0.001	< 0.001			< 0.001	
	07/06/09	0.0010	< 0.001	< 0.001			< 0.001	
	10/07/09	< 0.001	< 0.001	< 0.001			< 0.001	
DSIMW-6	01/08/10	0.0016	< 0.001	< 0.001			< 0.001	
DSIM W-0	04/08/10	0.0013	< 0.001	< 0.001			< 0.001	
	07/07/10	0.0012	< 0.001	< 0.001			< 0.001	
	10/28/10	0.0016	< 0.001	< 0.001			< 0.001	
	01/14/11	0.0015	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/07/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/28/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/27/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	02/08/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/18/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/18/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/31/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/16/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/10/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
ı	07/16/13	0.00039 J	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/21/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	03/11/14	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

		COC (mg/L)						
Well	Sample			1,1,1-	trans-1,2-	cis-1,2-		Vinyl
Number	Date	PCE	TCE	TCA	DCE	DCE	1,1-DCE	Chloride
1 (02222002	2				leral MCL (n		T	
		0.005	0.005	0.200	0.100	0.070	0.007	0.002
	01/08/09	< 0.001	< 0.001	< 0.001			< 0.001	
	04/10/09	< 0.001	< 0.001	< 0.001			< 0.001	
	07/06/09	< 0.001	< 0.001	< 0.001			< 0.001	
DSIMW-7	10/07/09	< 0.001	< 0.001	< 0.001			<0.001	
DSIN V	01/08/10	< 0.001	< 0.001	< 0.001			< 0.001	
	04/08/10	< 0.001	< 0.001	< 0.001			< 0.001	
	07/07/10	< 0.001	< 0.001	< 0.001			<0.001	
	10/28/10	< 0.001	< 0.001	< 0.001			< 0.001	
	01/14/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/07/11	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	<0.001
	07/28/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/27/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	02/08/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/18/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/18/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/31/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/17/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/10/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/16/13	0.00033 J	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/21/13	0.00054 J	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	03/12/14	0.00081 J	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/07/09	0.0023	< 0.001	< 0.001			< 0.001	
	04/09/09	0.0024	< 0.001	< 0.001			< 0.001	
	07/02/09	0.0028	< 0.001	< 0.001			< 0.001	
EPA1-1	10/06/09	0.0027	< 0.001	< 0.001			< 0.001	
21111	01/07/10	0.0026	< 0.001	< 0.001			< 0.001	
	04/08/10	0.0024	< 0.001	< 0.001			< 0.001	
	07/07/10	0.0033	< 0.001	< 0.001			< 0.001	
	10/27/10	0.0032	< 0.001	< 0.001			< 0.001	
	01/14/11	0.0017	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/06/11	0.0021	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/28/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/27/11	0.0011	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	02/08/12	0.0011	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/17/12	0.0028	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/18/12	0.0014	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/31/12	0.0023	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/17/13	0.0020	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/11/13	0.0021	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/17/13	0.0021	0.00029 J	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/22/13	0.0019	0.00027 J	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	03/14/14	0.002	0.00034 J	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/08/09	< 0.001	< 0.001	< 0.001			< 0.001	

					COC (mg/L))		
Well	Sample			1,1,1-	trans-1,2-	cis-1,2-		Vinyl
Number	Date	PCE	TCE	TCA	DCE	DCE	1,1-DCE	Chloride
1 (0.22.2.002	2				eral MCL (n		1	
		0.005	0.005	0.200	0.100	0.070	0.007	0.002
	04/10/09	0.0016	< 0.001	< 0.001			< 0.001	
	07/02/09	0.0014	< 0.001	< 0.001			< 0.001	
EPA1-2	10/07/09	0.0011	< 0.001	< 0.001			0.0037	
	01/07/10	< 0.001	< 0.001	< 0.001			< 0.001	
	04/07/10	0.0032	< 0.001	< 0.001			< 0.001	
	07/07/10	< 0.001	< 0.001	< 0.001			< 0.001	
	10/28/10	<0.001	< 0.001	< 0.001			< 0.001	
	01/13/11	0.0015	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/06/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/28/11	0.0024	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/26/11	0.0019	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	02/07/12	0.0016	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/17/12	0.0015	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/18/12	0.0023	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/30/12	0.0022	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/22/13	0.0020	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/24/13	0.0013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/18/13	0.0018	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/22/13	0.0022	< 0.001	0.00019 J	< 0.001	< 0.001	< 0.001	< 0.001
	03/13/14	0.0024	< 0.001	0.0002 J	< 0.001	< 0.001	< 0.001	< 0.001
	01/07/09	< 0.001	< 0.001	< 0.001			< 0.001	
	04/09/09	< 0.001	< 0.001	< 0.001			< 0.001	
	07/02/09	< 0.001	< 0.001	< 0.001			< 0.001	
EPA1-5	10/06/09	< 0.001	< 0.001	< 0.001			< 0.001	
El III 3	01/07/10	< 0.001	< 0.001	< 0.001			< 0.001	
	04/07/10	< 0.001	< 0.001	< 0.001			< 0.001	
	07/06/10	< 0.001	< 0.001	< 0.001			< 0.001	
	10/27/10	< 0.001	< 0.001	< 0.001			< 0.001	
	01/13/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/06/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/27/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/26/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	02/07/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/17/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/17/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/30/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/17/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/10/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/17/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/22/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	03/13/14	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
EPA1-6	01/07/09	0.0039	< 0.001	< 0.001			< 0.001	
	04/09/09	0.0048	< 0.001	< 0.001			< 0.001	

					COC (mg/L)		
Well	Sample	DOE	TOP	1,1,1-	trans-1,2-	cis-1,2-	11 000	Vinyl
Number	Date	PCE	TCE	TCA	DCE leral MCL (n	DCE	1,1-DCE	Chloride
		0.005	0.005	0.200	0.100	0.070	0.007	0.002
	07/02/09	0.0045	< 0.001	< 0.001			< 0.001	
	10/06/09	0.0030	< 0.001	< 0.001			< 0.001	
	01/07/10	0.0025	< 0.001	< 0.001			< 0.001	
	04/07/10	0.0044	< 0.001	< 0.001			< 0.001	
	07/06/10	0.0046	< 0.001	< 0.001			< 0.001	
	10/27/10	0.0038	< 0.001	< 0.001			< 0.001	
	01/13/11	0.0035	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/06/11	0.0033	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/27/11	0.0030	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/26/11	0.0025	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	02/07/12	0.0028	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/17/12	0.0020	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/17/12	0.0030	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/30/12	0.0032	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/17/13	0.0015	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/10/13	0.0021	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/17/13	0.0018	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/22/13	0.0017	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	03/13/14	0.0018	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/07/09	0.0062	< 0.001	< 0.001			< 0.001	
	04/09/09	0.0088	< 0.001	0.0005			< 0.001	
	07/02/09	0.0096	< 0.001	0.0007			< 0.001	
	10/06/09	0.0110	0.0005	0.0007			< 0.001	
EDA17	01/07/10	0.0099	< 0.001	< 0.001			< 0.001	
EPA1-7	04/07/10	0.0079	< 0.001	< 0.001			< 0.001	
	07/06/10	0.0098	< 0.001	< 0.001			< 0.001	
	10/27/10	0.0150	< 0.001	< 0.001			< 0.001	
	01/13/11	0.0120	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/06/11	0.0086	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/27/11	0.0084	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/26/11	0.0078	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	02/07/12	0.0080	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/17/12	0.0056	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/17/12	0.0048	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/30/12	0.0024	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/17/13	0.0047	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/10/13	0.0052	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/17/13	0.0031	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/22/13	0.0035 J	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	03/13/14	0.0018	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/07/09	< 0.001	< 0.001	< 0.001			< 0.001	
	04/09/09	< 0.001	< 0.001	< 0.001			< 0.001	

					COC (mg/L))		
Well	Sample			1,1,1-	trans-1,2-	cis-1,2-		Vinyl
Number	Date	PCE	TCE	TCA	DCE	DCE	1,1-DCE	Chloride
1 (0	2			1	eral MCL (n		T	
ED 4 1 0		0.005	0.005	0.200	0.100	0.070	0.007	0.002
EPA1-8	07/02/09	< 0.001	< 0.001	< 0.001			< 0.001	
	10/06/09	< 0.001	< 0.001	< 0.001			< 0.001	
	01/07/10	< 0.001	< 0.001	< 0.001			< 0.001	
	04/07/10	< 0.001	< 0.001	< 0.001			<0.001	
	07/06/10	< 0.001	< 0.001	< 0.001			< 0.001	
	10/27/10	< 0.001	< 0.001	< 0.001			< 0.001	
	01/13/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/06/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/28/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/26/11	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.001	< 0.001
	02/07/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/17/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/18/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/30/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/17/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/10/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/17/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/22/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	03/13/14	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/07/09	0.0017	< 0.001	< 0.001			< 0.001	
	04/10/09	0.0019	< 0.001	< 0.001			< 0.001	
	07/02/09	0.0015	< 0.001	< 0.001			< 0.001	
EPA2-1	10/06/09	0.0014	< 0.001	< 0.001			< 0.001	
27.72	01/07/10	0.0014	< 0.001	< 0.001			< 0.001	
	04/08/10	< 0.001	< 0.001	< 0.001			< 0.001	
	07/07/10	0.0016	< 0.001	< 0.001			< 0.001	
	10/28/10	0.0016	< 0.001	< 0.001			< 0.001	
	01/14/11	0.0014	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/06/11	0.0013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/28/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/27/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	02/08/12	0.0014	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/17/12	0.0018	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/18/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/31/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/17/13	0.0020	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/11/13	0.0020	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/17/13	0.0024	< 0.001	0.00019 J	< 0.001	< 0.001	< 0.001	< 0.001
	10/22/13	0.0022	< 0.001	0.00022 J	< 0.001	< 0.001	< 0.001	< 0.001
	03/14/14	0.0026	< 0.001	0.00021 J	< 0.001	< 0.001	< 0.001	< 0.001
	01/07/09	0.0009	< 0.001	< 0.001			< 0.001	
	04/10/09	0.0011	< 0.001	< 0.001			< 0.001	
	07/02/09	0.0009	< 0.001	< 0.001			< 0.001	

					COC (mg/L)		
Well	Sample			1,1,1-	trans-1,2-	cis-1,2-		Vinyl
Number	Date	PCE	TCE	TCA	DCE	DCE	1,1-DCE	Chloride
		0.005	0.005		leral MCL (n		0.007	0.002
	10/06/09	0.005 0.0013	0.005 <0.001	0.200 <0.001	0.100	0.070	<0.007	0.002
	01/07/10	0.0013	<0.001	<0.001			<0.001	
EPA2-2	04/08/10	0.0010	<0.001	<0.001			<0.001	
	07/07/10	0.0023	<0.001	<0.001			<0.001	
	10/28/10	0.0019	<0.001	<0.001			<0.001	
	01/14/11	0.0021	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	04/06/11	0.0019	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	07/28/11	0.0025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	10/27/11	0.0025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	02/08/12	0.0032	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	04/17/12	0.0038	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	07/18/12	0.0030	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	10/31/12	0.0032	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	01/22/13	0.0052	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	04/24/13	0.0037	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/17/13	0.0025	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/22/13	0.0026	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	03/13/14	0.0022	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/07/09	< 0.001	< 0.001	< 0.001			< 0.001	
	04/09/09	< 0.001	< 0.001	< 0.001			< 0.001	
	07/02/09	< 0.001	< 0.001	< 0.001			< 0.001	
	10/06/09	< 0.001	< 0.001	< 0.001			< 0.001	
EPA2-3	01/07/10	< 0.001	< 0.001	< 0.001			< 0.001	
21112 3	04/08/10	< 0.001	< 0.001	< 0.001			< 0.001	
	07/07/10	< 0.001	< 0.001	< 0.001			< 0.001	
	10/27/10	< 0.001	< 0.001	< 0.001			< 0.001	
	01/14/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/06/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/28/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/26/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	02/08/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/17/12							
	07/18/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/31/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/17/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/11/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/17/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/22/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	03/14/14	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
EPA2-7	01/07/09	< 0.001	< 0.001	< 0.001			< 0.001	
L1 112-1	04/09/09	< 0.001	< 0.001	< 0.001			< 0.001	
	07/02/09	< 0.001	< 0.001	< 0.001			< 0.001	

					COC (mg/L))		
Well	Sample			1,1,1-	trans-1,2-	cis-1,2-		Vinyl
Number	Date	PCE	TCE	TCA	DCE	DCE	1,1-DCE	Chloride
1 (02222002	2		=		leral MCL (n		T	
	10/01/00	0.005	0.005	0.200	0.100	0.070	0.007	0.002
	10/06/09	<0.001	<0.001	<0.001			<0.001	
	01/07/10	< 0.001	<0.001	<0.001			< 0.001	
	04/07/10	<0.001	<0.001	<0.001			<0.001	
	07/06/10	<0.001	<0.001	<0.001			<0.001	
	10/27/10	<0.001	<0.001	<0.001			< 0.001	
	01/13/11	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	04/05/11	< 0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	07/27/11	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001	<0.001
	10/26/11	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001
	02/07/12	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	04/17/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/17/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/30/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/22/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/24/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/17/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/23/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	03/12/14	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/07/09	0.0012	< 0.001	< 0.001			< 0.001	
	04/09/09	< 0.001	< 0.001	< 0.001			< 0.001	
	07/02/09	< 0.001	< 0.001	< 0.001			< 0.001	
	10/06/09	0.0032	< 0.001	< 0.001			< 0.001	
EPA2-10	01/07/10	0.0023	< 0.001	< 0.001			< 0.001	
	04/07/10	< 0.001	< 0.001	< 0.001			< 0.001	
	07/06/10	< 0.001	< 0.001	< 0.001			< 0.001	
	10/27/10	0.0016	< 0.001	< 0.001			< 0.001	
	01/13/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/05/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/27/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/26/11	0.0015	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	02/07/12	0.0014	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/17/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/17/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/30/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/22/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/24/13	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/17/13	0.00025 J	< 0.001	<0.001	<0.001	< 0.001	<0.001	<0.001
	10/23/13	0.00020 J	<0.001	< 0.001	<0.001	<0.001	< 0.001	< 0.001
	03/12/14	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001
	01/08/09	< 0.001	< 0.001	< 0.001			< 0.001	
	04/09/09	< 0.001	< 0.001	< 0.001			< 0.001	
	07/02/09	< 0.001	< 0.001	< 0.001			< 0.001	
	10/06/09	< 0.001	< 0.001	< 0.001			< 0.001	

					COC (mg/L))		
Well	Sample			1,1,1-	trans-1,2-	cis-1,2-		Vinyl
Number	Date	PCE	TCE	TCA	DCE	DCE	1,1-DCE	Chloride
- 10		0.00=	0.00=		leral MCL (n		1	0.000
ED 4 0 11	0.1.10=1.10	0.005	0.005	0.200	0.100	0.070	0.007	0.002
EPA2-11	01/07/10	< 0.001	< 0.001	< 0.001			<0.001	
	04/07/10	< 0.001	< 0.001	< 0.001			< 0.001	
	07/06/10	< 0.001	< 0.001	< 0.001			< 0.001	
	10/27/10	< 0.001	< 0.001	< 0.001			< 0.001	
	01/13/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/06/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/28/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/26/11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	02/07/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/17/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/18/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/30/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/17/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/10/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/17/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/22/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	03/13/14	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/07/09	0.0050	< 0.001	< 0.001			< 0.001	
	04/09/09	0.0068	< 0.001	< 0.001			< 0.001	
	07/02/09	0.0070	< 0.001	< 0.001			< 0.001	
	10/06/09	0.0046	< 0.001	< 0.001			< 0.001	
	01/07/10	0.0058	< 0.001	< 0.001			< 0.001	
	04/07/10	0.0064	< 0.001	< 0.001			< 0.001	
EPA2-15	07/06/10	0.0110	< 0.001	< 0.001			< 0.001	
	10/27/10	0.0140	< 0.001	< 0.001			< 0.001	
	01/13/11	0.0096	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/05/11	0.0092	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/27/11	0.0072	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/26/11	0.0056	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	02/07/12	0.0077	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/17/12	0.0014	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/17/12	0.0016	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/30/12	0.0029	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/22/13	0.0018	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/24/13	0.0013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/17/13	0.00078 J	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/23/13	0.0022	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	03/12/14	0.0015	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
MKMW-1	01/07/09	0.0077	< 0.001	< 0.001			< 0.001	
10112101 00 -1	04/09/09	0.0100	< 0.001	< 0.001			< 0.001	
	07/02/09	0.0077	< 0.001	< 0.001			< 0.001	
	10/06/09	0.0024	< 0.001	< 0.001			< 0.001	
	01/07/10	0.0061	< 0.001	< 0.001			< 0.001	

					COC (mg/L	<u>,</u>)		
Well	Sample			1,1,1-	trans-1,2-	cis-1,2-		Vinyl
Number	Date	PCE	TCE	TCA	DCE	DCE	1,1-DCE	Chloride
		0.005	0.005		eral MCL (n	, ,	0.007	0.002
	04/07/10	0.005 0.0064	0.005 <0.001	0.200 <0.001	0.100	0.070	0.007 <0.001	0.002
	07/06/10	0.0064	<0.001	<0.001			<0.001	
	10/27/10	0.0053	<0.001	<0.001			<0.001	
	01/13/11	0.0008	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	04/05/11	0.0093	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	07/27/11	0.0072	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	10/26/11	0.0072	<0.001	< 0.001	<0.001	<0.001	<0.001	<0.001
	02/07/12	0.0090	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	04/16/12	0.0027	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	07/17/12	0.0027	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	10/30/12	0.0033	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	01/22/13	0.0018	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	04/24/13	0.0023	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	07/16/13	0.0011	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	10/22/13	0.0013	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	03/14/14	0.0021	<0.001	0.0001 0.00017 J	<0.001	<0.001	<0.001	<0.001
	01/08/09	0.0020	<0.001	<0.001			<0.001	
	04/10/09	<0.0013	<0.001	<0.001			<0.001	
	07/06/09	0.0053	<0.001	<0.001			<0.001	
	10/07/09	<0.003	<0.001	<0.001			<0.001	
	04/08/10	0.001	<0.001	<0.001			<0.001	
MW87-2	07/07/10	0.0019	<0.001	<0.001			<0.001	
	10/29/10	0.0028	<0.001	<0.001			<0.001	
	01/14/11	0.0028	<0.001	<0.001		<0.001	<0.001	<0.001
	04/07/11	0.0098	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	07/29/11	0.0011	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	10/27/11	0.0057	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	02/08/12	0.0042	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	04/18/12							
		0.0028 0.0012	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	07/19/12		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	10/31/12	0.0060	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001 <0.001
	01/16/13 04/11/13	0.0011 0.0016	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001	<0.001
					<0.001	1		<0.001
	07/16/13	0.0046	<0.001	<0.001 0.00022 J		<0.001	<0.001	<0.001
	10/21/13	0.0069	<0.001	1	<0.001 <0.001	<0.001 <0.001		
	03/11/14 01/08/09	0.0042	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001
	04/10/09	0.0019 <0.001	<0.001 <0.001	<0.001 <0.001			<0.001 <0.001	
	07/06/09	0.0086	0.0005	<0.001			<0.001	
MW87-4	10/07/09	0.0086	< 0.0003	<0.001			<0.001	
	04/08/10							
		<0.001	<0.001	<0.001			<0.001	
	07/07/10	0.0150	<0.001	<0.001			<0.001	
	10/28/10	< 0.001	< 0.001	< 0.001			< 0.001	

					COC (mg/L)		
Well	Sample			1,1,1-	trans-1,2-	cis-1,2-		Vinyl
Number	Date	PCE	TCE	TCA	DCE	DCE	1,1-DCE	Chloride
		0.005	0.005		leral MCL (n	ng/L) 0.070	0.007	0.002
	01/14/11	0.005 <0.001	0.005 <0.001	0.200 <0.001	0.100 <0.001	<0.001	0.007 <0.001	0.002 <0.001
	04/07/11	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	07/29/11	0.0010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	10/27/11	<0.0010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	02/08/12	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	04/18/12	0.0013	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	07/19/12	<0.0020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	10/31/12	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	01/16/13	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	04/11/13 07/16/13	0.0016	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
			<0.001					
	10/21/13 03/11/14	0.0031	0.00028 J	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001
	03/11/14	0.0039	<0.001	<0.001			<0.001	
	04/10/09	0.0026	<0.001	<0.001			<0.001	
	07/06/09	0.0026	<0.001	<0.001			<0.001	
	10/07/09	0.0022	<0.001	<0.001			<0.001	
		1						
MW87-6	01/08/10	0.0011	<0.001	<0.001			<0.001	
	04/08/10	0.0015 0.0017	<0.001 <0.001	<0.001			<0.001 <0.001	
	07/07/10			<0.001				
	10/28/10	0.0011	<0.001	<0.001	 -0.001	 -0.001	<0.001	
	01/14/11	0.0022	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	04/07/11	0.0019	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	07/29/11	0.0015	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	10/27/11	0.0015	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	02/08/12	0.0010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	04/18/12	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	07/18/12	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	10/31/12	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	01/16/13	<0.001	<0.001	< 0.001	<0.001	<0.001	<0.001	<0.001
	04/11/13	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	07/16/13	0.00067 J 0.00025 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001 <0.001
	10/21/13 03/13/14	<0.001	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001	<0.001
	03/13/14	0.0180	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	04/10/09	0.0140	<0.001	<0.001			<0.001	
	07/06/09	0.0140	<0.001	<0.001			<0.001	
MW87-7	10/07/09	0.0039	<0.001	<0.001			<0.001	
	01/08/10	0.0120	0.0006	<0.001			<0.001	
	04/08/10	0.00110	<0.001	<0.001			<0.001	
	07/07/10	0.0037	<0.001	<0.001			<0.001	
	10/29/10	0.0110	<0.001	<0.001			<0.001	
	01/14/11	0.0240	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	V1/14/11	0.0200	\U.UU1	\0.001	\U.UU1	\0.001	\U.UU1	\U.UU1

					COC (mg/L)		
Well	Sample			1,1,1-	trans-1,2-	cis-1,2-		Vinyl
Number	Date	PCE	TCE	TCA	DCE	DCE	1,1-DCE	Chloride
		0.00=	0.00=		eral MCL (n	<u> </u>	0.00=	0.000
	04/07/11	0.005	0.005	0.200	0.100	0.070	0.007	0.002
	04/07/11	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	07/29/11	0.0086	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	10/27/11	0.0074	<0.001	<0.001	<0.001	<0.001	< 0.001	< 0.001
	02/08/12	0.0041	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	04/18/12	0.0016	<0.001	<0.001	<0.001	<0.001	< 0.001	< 0.001
	07/19/12	0.0016	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	10/31/12	0.0017	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	01/16/13	0.0016	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	04/11/13	0.0020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	07/16/13	0.0017	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	10/21/13	0.0020	0.00036 J	0.00021 J	<0.001	<0.001	<0.001	<0.001
	03/11/14	0.0019	<0.001	<0.001	< 0.001	< 0.001	<0.001	< 0.001
	01/08/09	0.0061	<0.001	<0.001			<0.001	
	04/10/09	0.0023	<0.001	<0.001			<0.001	
	07/02/09	0.0050	<0.001	<0.001			<0.001	
MW87-8	10/07/09	0.0060	<0.001	<0.001			<0.001	
	01/08/10	0.0012	<0.001	<0.001			<0.001	
	04/08/10	0.0017	<0.001	<0.001			<0.001	
	07/07/10	0.0022	<0.001	<0.001			<0.001	
	10/28/10	0.0036	<0.001	<0.001			<0.001	
	01/14/11	0.0020	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001
	04/07/11	0.0013	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001
	07/29/11	0.0047	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001
	10/27/11	0.0034	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	02/08/12	0.0030	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	04/18/12	0.0023	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	07/19/12	0.0017	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001
	10/31/12	0.0010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	01/16/13	0.0020	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001
	04/11/13	<0.001	< 0.001	<0.001	<0.001	<0.001	<0.001	< 0.001
	07/16/13	0.0030	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	10/21/13 03/11/14	0.0025 0.0011	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001	<0.001	<0.001	<0.001 <0.001
	03/11/14	<0.0011	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	04/09/09	<0.001	<0.001	<0.001			<0.001	
	07/02/09	<0.001	<0.001	<0.001			<0.001	
OBG-3	10/06/09	<0.001	<0.001	<0.001			< 0.001	
0200	01/07/10	<0.001	<0.001	<0.001			<0.001	
	04/07/10	<0.001	<0.001	<0.001			<0.001	
	07/06/10	<0.001	<0.001	<0.001			<0.001	
	10/27/10	<0.001	<0.001	<0.001			<0.001	
	01/14/11	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001
	04/07/11	<0.001	<0.001	<0.001	<0.001	< 0.001	<0.001	< 0.001

					COC (mg/L)		
Well	Sample			1,1,1-	trans-1,2-	cis-1,2-		Vinyl
Number	Date	PCE	TCE	TCA	DCE	DCE	1,1-DCE	Chloride
		0.005	0.005		leral MCL (n	,	0.00	0.002
	07/20/11	0.005	0.005	0.200	0.100	0.070	0.007	0.002
	07/29/11	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	10/27/11	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	02/08/12	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	04/18/12	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	07/19/12	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	10/31/12	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	01/22/13	<0.001	<0.001	<0.001	< 0.001	<0.001	<0.001	<0.001
	04/24/13	<0.001	<0.001	<0.001	< 0.001	<0.001	< 0.001	< 0.001
	07/16/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/22/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	03/13/14	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/07/09	0.0082	< 0.001	< 0.001			< 0.001	
	04/09/09	0.0087	< 0.001	< 0.001			< 0.001	
	07/02/09	0.0073	< 0.001	< 0.001			< 0.001	
	10/06/09	0.0093	< 0.001	< 0.001			< 0.001	
PCMW-2	01/07/10	0.0120	< 0.001	< 0.001			< 0.001	
	04/07/10	0.0089	< 0.001	< 0.001			< 0.001	
	07/06/10	0.0012	< 0.001	< 0.001			< 0.001	
	10/27/10	0.0130	< 0.001	< 0.001			< 0.001	
	01/13/11	0.0095	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/05/11	0.0075	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/27/11	0.0075	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/26/11	0.0058	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	02/07/12	0.0047	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/16/12	0.0025	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/17/12	0.0040	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/30/12	0.0048	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/22/13	0.0033	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/24/13	0.0021	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/17/13	0.0024	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/23/13	0.0025	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	03/12/14	0.0016	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/07/09	0.0024	< 0.001	< 0.001			< 0.001	
	04/09/09	0.0023	< 0.001	< 0.001			< 0.001	
	07/02/09	0.0009	< 0.001	< 0.001			< 0.001	
PCMW-4	10/06/09	0.0011	< 0.001	< 0.001			< 0.001	
	01/07/10	0.0018	< 0.001	< 0.001			< 0.001	
	04/07/10	0.0026	< 0.001	< 0.001			< 0.001	
	07/06/10	0.0032	< 0.001	< 0.001			< 0.001	
	10/27/10	0.0037	< 0.001	< 0.001			< 0.001	
	01/13/11	0.0036	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/05/11	0.0025	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/27/11	0.0034	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

					COC (mg/L))		
Well	Comple			1,1,1-	trans-1,2-	cis-1,2-		Vinyl
Number	Sample Date	PCE	TCE	TCA	DCE	DCE	1,1-DCE	Chloride
Number	Date			Fed	leral MCL (n	ng/L)		
		0.005	0.005	0.200	0.100	0.070	0.007	0.002
	10/26/11	0.0012	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	02/07/12	0.0015	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/16/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/17/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/30/12	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	01/22/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	04/24/13	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	07/17/13	0.00079 J	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	10/23/13	0.00064 J	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	03/12/14	0.0011	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

Gray shading indicates concentration detected at or above the MCL
-- = not sampled or analyzed for chemical
mg/L = milligrams per liter
< = analyte not detected at stated detection limit
J = estimated concentration
Results from duplicate samples are not included in table.

Appendix H: Institutional Controls

NOTICE OF USE RESTRICTIONS AND RESTRICTIVE COVENANT

THIS NOTICE OF USE RESTRICTIONS AND RESTRICTIVE COVENANT is made effective this 20 day of SEPTENTOER, 2010, by and between SCHLUMBERGER TECHNOLOGY CORPORATION, as successor in merger to Dowell Schlumberger Incorporated hereinafter referred to as "STC", the UNITED STATES OF AMERICA, hereinafter referred to as "the United States", and the STATE OF WYOMING, hereinafter referred to as the "State".

WITNESSETH:

WHEREAS, STC is the owner of real property (two parcels) ("the Property") as described on Exhibit "A" attached hereto and by this reference incorporated herein; and

WHEREAS, STC, as successor to Dowell Schlumberger Incorporated., is a party to the Consent Decree filed in the United States District Court for the District of Wyoming, Civil Action Number 91 CV 1042B; and

WHEREAS, STC, the United States, and State have determined that the use of the Property shall be restricted to the current uses which are industrial in nature to prevent future exposures to environmental conditions and contaminants on or under the Property; and

WHEREAS, the United States and the State, as parties to this Notice of Use Restrictions and Restrictive Covenants, are granted full rights of enforcement as to the provisions contained herein.

Therefore, STC as owner in fee title of the Property, does hereby impose restrictions on the use of the Property as follows: NATRONA COUNTY CLERK, WY
Renea Vitto Recorded: SR

Sep 29, 2010 01:08:45 PM Pages: 14 Fee: \$47.00 DEUELL ENVIRONMENTAL

895900

- 1. The Property is presently zoned heavy industrial pursuant to the 2000 Natrona County Zoning Resolution. STC does hereby agree and sets forth that said Property shall not be used for any other purpose than heavy industrial as set forth in the Natrona County Zoning Resolution. A copy of the Heavy Industrial classification for the Natrona County Zoning Resolution is attached hereto and marked as Exhibit "B".
- The groundwater under or on the Property shall not be used for any use or purpose, except for monitoring of groundwater elevations and periodic sample collection, without the express approval of STC, the United States and the State.
- 3. If any excavation into or through the ground surface at the Property is conducted and soil is going to be sent off site for any reason, the soil will not be disposed of, applied or used at property zoned for residential use unless it is tested in accordance with an EPA or Wyoming DEQ approved methodology and shown to be safe for residential use.
- 4. The Property shall not be used for any purpose that may cause or result in a violation of any federal, state, or local laws, ordinances, or regulations related to environmental conditions and contaminants on or under the Property.
- 5. The Property shall not be used for any purpose that is determined to create, cause, or result in risk to human health or the environment related to environmental conditions and contaminants on or under the Property as determined by the United States, State, or any other governmental agency having jurisdiction over the Property.
- 6. The Property shall not be used for any purpose inconsistent with any existing remedy agreement, decision document or other applicable agreement or document or decree or order, or for any purpose that interferes with the implementation or completion of any response actions required thereby.

- 7. The restrictions which are imposed upon this Property shall run with the land and be binding upon STC and its successors, assigns, future owners, future lessees, sub lessees and occupants of the Property, including persons who take title to the Property as heirs, and their invitees, guests, agents, employees or persons acting under their control or direction. The restrictions are imposed for the purpose of protecting the public health and the environment and to prevent interference with the performance and maintenance of any response actions required by the United States, State and any other governmental agencies having jurisdiction over the Property.
- 8. STC, on behalf of itself and its successors, transferees and assigns, does hereby agree that the United States and the State, their successors and assigns, as parties to this instrument, shall have the right to enforce any and all terms contained herein.
- 9. The restrictions on the use of the Property may not be modified, amended or terminated by STC, its successors, transferees and assigns without written approval of the United States or the State. In the event that STC conveys, transfers or assigns all or any part of its right, title and interest in and to the Property, STC, the United States, and the State shall have the retained and reversionary right to enforce the terms and conditions hereof.
- 10. STC agrees that in the event of STC's default or non-compliance with the terms of this Notice of Use Restrictions and Restrictive Covenant, the United States and the State shall have the right of specific performance of this instrument and the right to obtain from any court of competent jurisdiction a temporary restraining order, preliminary injunction and permanent injunction to obtain such performance.

- 11. It is STC's intent that this Property be encumbered by this Notice of Use Restrictions and Restrictive Covenant and that such restrictions run with the land and are enforceable by the United States and the State for the benefit of the public.
- 12. <u>Notice upon Conveyance</u>. STC shall notify the United States and State promptly after each conveyance of an interest in any portion of the Property. STC's notice shall include the name, address, and telephone number of the Transferee or its representative, a copy of the deed, or other documentation evidencing the conveyance, and an unsurveyed plat that shows the boundaries of the property being transferred.

Each instrument hereafter conveying any interest in the Property or any portion of the Property shall contain a notice of the activity and use limitations set forth in this Notice Of Use Restrictions And Restrictive Covenant and provide the recorded location of this Notice Of Use Restrictions And Restrictive Covenant. The notice shall be substantially in the following form:

THE INTEREST CONVEYED HEREBY IS SUBJECT TO A NOTICE OF USE RESTRICTIONS AND RESTRICTIVE COVENANT, DATED _______, 2010, RECORDED IN THE DEED OR OFFICIAL RECORDS OF THE NATRONA COUNTY RECORDER ON _______, 2010, IN [DOCUMENT ______, OR BOOK ____, PAGE _____,]. THE NOTICE OF USE RESTRICTIONS AND RESTRICTIVE COVENANT CONTAINS THE ACTIVITY AND USE LIMITATIONS PRESENTED IN EXHIBIT C:

13. This Notice of Use Restrictions and Restrictive Covenant shall be interpreted in all respects in accordance with the laws of the State of Wyoming, resolving any ambiguities and questions of the validity of specific provisions so as to favor restricting use of the Property to uses that are protective of human health and the environment and that will not interfere with the performance and maintenance of any response actions required by the United States, State, or any other governmental agencies having jurisdiction over the Property.

14. If any provision of this Notice of Use Restrictions and Restrictive Covenant, or the application thereof to any person or circumstance, is found to be invalid, the remainder of the provisions of this Notice of Use Restrictions and Restrictive Covenant, or the application of such provision to persons or circumstances other than those as to which it is found to be invalid, as the case may be, shall not be affected thereby.

DATED this 23 day of SEPTEMBER, 2010.

SCHLUMBERGER TECHNOLOGY
CORPORATION
By: Janis Tota 9-28-10
District Part es
Printed Name
VP J (> C
Title (Printed)
STATE OF WOMEN
COUNTY OF NATRONA) ss.
Daniel Gates , being first duly sworn, did say that he/she is the duly
authorized representative of Schlumberger Technology Corporation; and that he/she is authorized
by said Corporation to execute the foregoing instrument on behalf of said Corporation and he/she acknowledges the execution of said instrument to be the free act and deed of said Corporation.

Daniel Yafes Uce President Name Title Subscribed and swom to before me by Laniel Yateo this 28 day of
1 · 111-+ th
Subscribed and sworn to before me by <u>Laniel Yates</u> this <u>Adday of</u>
Witness my hand and official seal.
Comment Them (1) ell
My Commission Expires: ANN BRUSO WEBB A Notary Public NOTARY FUSILC State of Poxas Comm. Exp. 02-30-2014

5

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Printed Name
Super Function
Title (Printed)

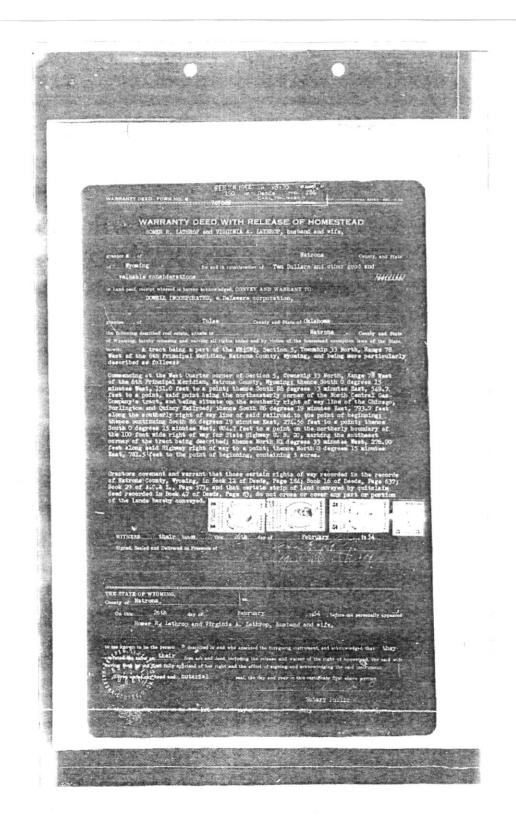
STATE OF WYOMING PM COUNTY OF NATRONA

Subscribed and sworn to before me by CHACLES MURRAL an authorized agent of the United State Environmental Protection Agency, this 23 day of September 2010.

Witness my hand and official seal.

My Commission Expires: 1-15-2012

EXHIBIT A



word	
****	TV DEED
	NTY DEED
CHARLES V. TUNISON and ALICE J. TUNIS	SON, HUSDANG and Wife
ETEROTO. 5, of NATRONA	
of WYOMING for and in consideration	m of \$10.00 and other good and
valuable considerations	DOLLAR
	EY AND WARRANT TO
THE DOW CHEMICAL COMPANY, a Delaware	
Michigan	
grantee, of	
MIDEAND County, and	
the following described real estate, situate in	
	and by virtue of the homestead exemption laws of the State
to-wit:	Wk, Section 5, Township 33 North, Range
	nty, Wyoming, more particularly described
as follows:	
Commencing at the one-quarter corner	
Township and Range; Thence S. 0015' 1	W., 151.0 feet to a point; Thence S. ence S. 86 ⁰ 19' E., 1068.26 feet to the
	located on the southerly right-of-way
line of the Chicago Burlington and Qu	uincy Railroad Co. and being the north-
feet along said right-of-way to the	described; Thence S. 86 ⁰ 19' E., 267.7 northeasterly corner of the tract;
Thence S. 0015' W., 827.3 feet to the	e southeasterly corner of the tract
	f-way line of the U.S. Highway No. 20; g said right-of-way to the southwesterly
	E., 804.7 feet to the point of beginning.
EXCEPTING THEREFROM a strip of land intract, more particularly described as	being a portion of the above described s follows:
Beginning at the southwest corner of	
	the above described tract of land:
Thence N. 0015' E. for a distance of	
Thence N. 0°15' E. for a distance of thereof; Thence S. 81°33' E. for a d	36.4 feet along the west boundary istance of 269.9 feet along a line
Thence N. 0°15' E. for a distance of thereof; Thence S. 81°33' E. for a d perallel to the north right of way b 36.0 feet northerly thereof whon mean	36.4 feet along the west boundary istance of 269.9 feet along a line oundary of State Highway U. S. 20 and sured at right angles thereto, to a
Thence N. 0°15' E. for a distance of thereof; Thence S. 81°33' E. for a d. parallel to the north right of way b 36.0 feet northerly thereof whon mean point on the east boundary of said to	36.4 feet along the west boundary istance of 269.9 feet along a line oundary of State Highway U. S. 20 and sured at right angles thereto, to a ract of land; Thence S. 0915' W. 36.4
Thence N. 0°15' E. for a distance of thereof; Thence S. 81°33' E. for a d parallel to the north right of way b 36.0 feet northerly thereof whon mea- point on the east boundary of said t feet to a point on the north right o U.S. 20; Thence N. 81°33' W. 269.9 f	36.4 foet along the west boundary istance of 269.9 feet along a line oundary of State Highway U. S. 20 and sured at right angles thereto, to a ract of land; Thence S. 0015' W. 36.4 f way boundary of present State Highway eet along said State Highway right of
Thence N. 0°15' E. for a distance of thereof; Thence S. 81°33' E. for a diparallel to the north right of way be 36.0 feet northerly thereof whon mean point on the east boundary of said the feet to a point on the north right of U.S. 20; Thence N. 81°33' W. 269.9 for way boundary to the point of beginning	36.4 foet along the west boundary istance of 269.9 feet along a line oundary of State Highway U. S. 20 and sured at right angles thereto, to a ract of land; Thence S. 0015' W. 36.4 f way boundary of present State Highway cet along said State Highway right of ng.
Thence N. 0°15' E. for a distance of thereof; Thence S. 81°33' E. for a d parallel to the north right of way b 36.0 feet northerly thereof whon mea- point on the east boundary of said t feet to a point on the north right o U.S. 20; Thence N. 81°33' W. 269.9 f	36.4 foet along the west boundary istance of 269.9 feet along a line oundary of State Highway U. S. 20 and sured at right angles thereto, to a ract of land; Thence S. 0915' W. 36.4 f way boundary of present State Highway eet along said State Highway right of ng. On situate RECORDEDOCT 6 1981 AT3:410-CLOC
Thence N. 0°15' E. for a distance of thereof; Thence S. 81°33' E. for a diparallel to the north right of way by 36.0 feet northerly thereof whom mean point on the east boundary of said the feet to a point on the north right of U.S. 20; Thence N. 81°33' W. 269.9 for way boundary to the point of beginning Together with all improvements there	36.4 foet along the west boundary istance of 269.9 feet along a line oundary of State Highway U. S. 20 and sured at right angles thereto, to a ract of land; Thence S. 0915' W. 36.4 f way boundary of present State Highway cet along said State Highway right of ng. on situate RECORDEDOCT 6 1981 AT3:410CLCC INSTRUMENT NO. 320270
Thence N. 0°15' E. for a distance of thereof; Thence S. 81°33' E. for a diparallel to the north right of way but 36.0 feet northerly thereof whom mean point on the east boundary of said the feet to a point on the north right of U.S. 20; Thence N. 31°31' W. 269,9 feway boundary to the point of beginning together with all improvements there subject to reservations and easement	36.4 feet along the west boundary istance of 269.9 feet along a line oundary of State Highway U. S. 20 and sured at right angles thereto, to a react of land; Thence S. 0015' W. 36.4 if way boundary of present State Highway right of ng. on situate RECORDIDOT 6 1981 AT3:4100000 is of record. JOHN LIDBN COUNTY CL.
Thence N. 0°15' E. for a distance of thereof; Thence S. 81°33' E. for a diparallel to the north right of way by 36.0 feet northerly thereof whom mean point on the east boundary of said the feet to a point on the north right of U.S. 20; Thence N. 81°33' W. 269.9 for way boundary to the point of beginning Together with all improvements there	36.4 feet along the west boundary istance of 269.9 feet along a line oundary of State Highway U. S. 20 and sured at right angles thereto, to a react of land; Thence S. 0015' W. 36.4 if way boundary of present State Highway right of ng. on situate RECORDIDOT 6 1981 AT3:4100000 is of record. JOHN LIDBN COUNTY CL.
Thence N. 0°15' E. for a distance of thereof; Thence S. 81°33' E. for a diparallel to the north right of way but 36.0 feet northerly thereof whom mean point on the east boundary of said the feet to a point on the north right of U.S. 20; Thence N. 31°31' W. 269,9 feway boundary to the point of beginning together with all improvements there subject to reservations and easement	36.4 feet along the west boundary istance of 269.9 feet along a line oundary of State Highway U. S. 20 and sured at right angles thereto, to a ract of land; Thence S. 0015' W. 36.4 if way boundary of present State Highway cet along said State Highway right of ng. on situate RECORDSDOCT 6 1981 AT3:410CLCC INCTAUMENT NO. 320270 JOHN 1 TOSIN COUNTY C.
Thence N. 0°15' E. for a distance of thereof; Thence S. 81°33' E. for a diparallel to the north right of way but 36.0 feet northerly thereof whom mean point on the east boundary of said the feet to a point on the north right of U.S. 20; Thence N. 31°31' W. 269,9 feway boundary to the point of beginning together with all improvements there subject to reservations and easement	36.4 feet along the west boundary istance of 269.9 feet along a line oundary of State Highway U. S. 20 and sured at right angles thereto, to a ract of land; Thence S. 0015' W. 36.4 f way boundary of present State Highway cet along said State Highway right of ng. on situate RECORDEDOCT 6 1981 AT3:41000000 s of record INTITUMENT NO. 320270 JOHN L TORIN COUNTY C. 1981.
Thence N. 0°15' E. for a distance of thereof; Thence S. 81°33' E. for a diparallel to the north right of way but 36.0 feet northerly thereof whom mean point on the east boundary of said the feet to a point on the north right of U.S. 20; Thence N. 31°31' W. 269,9 feway boundary to the point of beginning together with all improvements there subject to reservations and easement	36.4 feet along the west boundary istance of 269.9 feet along a line oundary of State Highway U. S. 20 and sured at right angles thereto, to a ract of land; Thence S. 0015' W. 36.4 ff way boundary of present State Highway cet along said State Highway right of ng. Son situate RECORDSDOCT 6 1981 AT3:410CLCC INCTAUMENT NO. 320270 JOHN J. TORIN COUNTY C. 19.81
Thence N. 0°15' E. for a distance of thereof; Thence S. 81°33' E. for a diparallel to the north right of way but 36.0 feet northerly thereof whom mean point on the east boundary of said the feet to a point on the north right of U.S. 20; Thence N. 31°31' W. 269,9 feway boundary to the point of beginning together with all improvements there subject to reservations and easement	36.4 feet along the west boundary istance of 269.9 feet along a line oundary of State Highway U. S. 20 and sured at right angles thereto, to a ract of land; Thence S. 0015' W. 36.4 f way boundary of present State Highway cet along said State Highway right of ng. On situate RECORDIDOCT 6 1981 AT3:410-LDC INSTRUMENT NO. 320270 SOF TRECORDIDOCT 1981 AT3:410-LDC INSTRUMENT NO. 1981
Thence N. 0°15' E. for a distance of thereof; Thence S. 81°33' E. for a diparallel to the north right of way but 36.0 feet northerly thereof whom mean point on the east boundary of said the feet to a point on the north right of U.S. 20; Thence N. 31°31' W. 269,9 feway boundary to the point of beginning together with all improvements there subject to reservations and easement	36.4 feet along the west boundary istance of 269.9 feet along a line oundary of State Highway U. S. 20 and sured at right angles thereto, to a ract of land; Thence S. 0015' W. 36.4 ff way boundary of present State Highway cet along said State Highway right of ng. Son situate RECORDSDOCT 6 1981 AT3:410CLCC INCTAUMENT NO. 320270 JOHN J. TORIN COUNTY C. 19.81
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EXHIBIT R

Section 10. Heavy Industrial (HI)

The intent and purpose of the HI district is to create and preserve an area for industrial uses of that require isolation from many other land uses.

For each permitted or conditional use, check the definitions, Appendix A, and Design Criteria, Chapter VII, to determine requirements for that specific use.

- b. The following are permitted uses in this district:
 - Accessory buildings and uses. (1)
 - Auto and truck wash. (2)
 - (3) Auto wrecker service.
 - (4) Automobile, truck and trailer sales.
 - (5) (6) Business, retail; with or without outdoor storage.
 - Business, wholesale; with or without outdoor storage.
 - Chemical plant, processing and storage. (7)
 - Concrete batch plant.
 - (8) (9) Construction yard and shop.
 - Creosote manufacturing and treating.
 - (10) (11) Gas and LPG processing plant.
 - Heavy equipment sales and service. (12)
 - (13)Hot mix plant.
 - (14)Mineral manufacturing, refining and processing.
 - (15) Oil field or mining equipment.
 - Pipe yards, drill rig assembly. (16)
 - Pipeline terminal and pump station. (17)
 - (18)Pre-cast concrete manufacturing.
 - (19)Refinery.
 - (20) Rendering plant.
 - (21) Restaurant or cafe.
 - Sanitary landfill, sewage treatment facility. (22)
 - (23)Sawmill.
 - Sign, billboard advertising pursuant to Chapter VII, Design Criteria and (24) Procedures, Section 4, Signs.
 - Storage, indoor and outdoor. (25)
 - Storage of ffartimable and combustible liquids not to exceed 12,000 gallons. (26)
 - (27)Truck stop.
 - (28)Truck terminal.
 - Warehouse. (29)
- In addition to the above permitted uses, the following uses may be approved by conditional use permit:

31 2000 Natrona County Zoning Resolution

EXHIBIT "3"

- (1) Mining: aggregate extraction (See Chapter VII, Design Criteria and Procedures).
- (2) (3) Auto reduction/recycling center.
- Communication tower.
- (2) (3) Manufacturing, and storage of explosives.
- Public facility.
- (4) Salvage yard.
- Security quarters, subject to the following conditions:
 - The only employee accommodations allowed in the District be exclusively for a caretaker or watchman employed specifically for the purpose of providing full-time security and/or maintenance.
 - The employee accommodations shall be contained within a building containing a permitted use or, if outside the building, the employee accommodations shall be a mobile home or travel trailer. No permanent security structures shall be permitted on site.
 - The employee accommodations must be on the same property and under the same ownership as the use for which the occupants are providing security or maintenance.
 - All applicable covenants, bulk regulations, building codes, and health department regulations shall be complied with.
- Sign, billboard advertising over 480 square feet, (See Chapter VII, Design Criteria (6) and Procedures, Section 4, Signs).
- Storage of flammable and combustible liquids in excess of 12,000 gallons. (7)
- (8) Toxic and hazardous waste storage.
- (9) Utility installation.
- Other similar and compatible uses as determined by the Board.
- Minimum district size is 10 acres. d.
- Minimum lot size is 2 acres. e.
- Minimum setbacks for principal and accessory buildings are as follows:
 - 60 feet adjacent to all Federal, State and County roads.;
 - 40 feet adjacent to all other roads; (2)
 - 10 feet from all property lines not abutting a road; 150 feet adjacent to a business or residential district.
- g. No Maximum height.
- No minimum open space.

32 2000 Natrona County Zoning Resolution

EXHIBIT C

Notice of Use Restrictions and Restrictive Covenants

 The Property is presently zoned heavy industrial pursuant to the 2000 Natrona County Zoning Resolution. Grantee does hereby agree and sets forth that said Property shall not be used for any other purpose than heavy industrial as set forth in the Natrona County Zoning Resolution.

 The groundwater under or on the Property shall not be used for any use or purpose, except for monitoring of groundwater elevations and periodic sample collection, without the express approval of Grantee, the United States and the State.

3. If any excavation into or through the ground surface at the Property is conducted and soil is going to be sent off site for any reason, the soil will not be disposed of, applied or used at property zoned for residential use unless it is tested in accordance with an EPA or Wyoming DEQ approved methodology and shown to be safe for residential use.

 The Property shall not be used for any purpose that may cause or result in a violation of any federal, state, or local laws, ordinances, or regulations related to environmental conditions and

contaminants on or under the Property.

5. The Property shall not be used for any purpose that is determined to create, cause, or result in risk to human health or the environment related to environmental conditions and contaminants on or under the Property as determined by the United States, State, or any other governmental agency having jurisdiction over the Property.

6. The Property shall not be used for any purpose inconsistent with any existing remedy

6. The Property shall not be used for any purpose inconsistent with any existing remedy agreement, decision document or other applicable agreement or document or decree or order, or for any purpose that interferes with the implementation or completion of any response actions required thereby.

- 7. The restrictions which are imposed upon this Property shall run with the land and be binding upon Grantee and its successors, assigns, future owners, future lessees, sub lessees and occupants of the Property, including persons who take title to the Property as heirs, and their invitees, guests, agents, employees or persons acting under their control or direction. The restrictions are imposed for the purpose of protecting the public health and the environment and to prevent interference with the performance and maintenance of any response actions required by the United States, State and any other governmental agencies having jurisdiction over the Property.
- 8. Grantee, on behalf of itself and its successors, transferees and assigns, does hereby agree that the United States and the State, their successors and assigns shall have the right to enforce any and all terms contained herein.
- 9. The restrictions on the use of the Property may not be modified, amended or terminated by Grantee, its successors, transferees and assigns, without written approval of the United States or the State. In the event that Grantee conveys, transfers or assigns all or any part of its right, title and interest in and to the Property, Grantee, the United States, and the State shall have the retained and reversionary right to enforce the terms and conditions hereof.
- 10. Grantee agrees that in the event of Grantee's default or non-compliance with the terms of this Notice of Use Restrictions and Restrictive Covenants, the United States and the State shall have the right of specific performance of this instrument and the right to obtain from any court of competent jurisdiction a temporary restraining order, preliminary injunction and permanent injunction to obtain such performance.
- 11. It is Grantee's intent that this Property be encumbered by this Notice of Use Restrictions and Restrictive Covenants and that such restrictions run with the land and are enforceable by the United States and the State for the benefit of the public.
- 12. This Notice of Use Restrictions and Restrictive Covenants shall be interpreted in all respects in accordance with the laws of the State of Wyoming, resolving any ambiguities and questions of the validity of specific provisions so as to favor restricting use of the Property to uses that are protective of human health and the environment and that will not interfere with the performance and maintenance of any response actions required by the United States, State, or any other governmental agencies having jurisdiction over the Property.
- 13. If any provision of this Notice of Use Restrictions and Restrictive Covenants, or the application thereof to any person or circumstance, is found to be invalid, the remainder of the provisions of this Notice of Use Restrictions and Restrictive Covenants, or the application of such provision to persons or circumstances other than those as to which it is found to be invalid, as the case may be, shall not be affected thereby.

Page 1 of 1

NATRONA COUNTY CLERK, WY Renea Vitto Recorded: SR

Sep 29, 2010 01:01:51 PM Pages: 5 Fee: \$20.00

KINDER MORGAN

895899

SPECIAL WARRANTY DEED

KINDER MORGAN, INC., a Kansas corporation with an address of 370 Van Gordon, P. O. Box 281304, Lakewood, Colorado 80228 - 8304 (formerly known as K N Energy, Inc., Kansas Nebraska Natural Gas Company, Inc., Kansas Pipeline & Gas Co. and successor in interest to Northern Gas Company, by merger), successor in interest to North Central Gas Company, successor in interest to Northern Utilities, Inc., ("GRANTOR"), County of Jefferson and State of Colorado, for and in consideration of Five Dollars (\$5.00) and other good and valuable consideration, in hand paid, hereby sells and conveys to KM UPSTREAM LLC., a Delaware limited liability company ("GRANTEE"), whose legal address is 370 Van Gordon, P.O. Box 281304-8304, Lakewood, Colorado 80228-8304 of the County of Jefferson and State of Colorado, the parcels of real estate situated in Natrona County, Wyoming (the "Property"), together with all of Grantor's right, title and interest, if any, in and to (i) all improvements located on the Property, and (ii) all and singular, the rights and appurtenances pertaining to the Property as more particularly described on Exhibit "A" and subject to certain use restrictions and restrictive covenants as more particularly described on Exhibit "B", both attached hereto and made a part hereof.

This conveyance is subject to all matters recorded in the real property records of Natrona County, Wyoming and all matters that would be revealed by a current, on the ground survey of the Property.

Grantor warrants the title against all persons claiming by, through or under the Grantor but not otherwise. Signed this _ GRANTOR(S): KINDER MORGAN, INC. By: Name: Vice President Title: STATE OF TEXAS

The foregoing instrument was acknowledged before me this 24 day of Suptime JOSEPH USTENGART, AS VICE PRESIDENT OF KINDER MORERN, IN Witness my hand and official seal.

My commission expires: 5/20/2013

ANDRE MASSEY Notary Public, State of Texas My Commission Expires May 20, 2013

Fee / CO-000039-000

COUNTY OF HARRIS

EXHIBIT "A"

Attached to and made a part of that certain Special Warranty Deed dated <u>Just</u>. <u>24</u>, 2010 by and between Kinder Morgan, Inc., as Grantor, and KM Upstream LLC, as Grantee.

Parcel 1 -

A portion of the Northwest Quarter of the Southwest Quarter (NW/4SW/4) of Section 5, Township 33 North, Range 78 West of the 6th P.M., described, as follows:

Beginning at a point which is the intersection of the west boundary of Section 5, T33N, R78W, 6th P.M., and the south boundary of the Chicago, Burlington & Quincy Railroad Company right of way and bears South 0° 15' West 151 feet from the west quarter corner of said section, township and range, thence running South 86° 21' East 551.1 feet, along the south boundary of the C. B. & Q right of way, thence South 0° 15' West 815.5 feet to the north boundary of the Chicago & North Western Railway Company right of way, thence North 81° 29' West 555.9 feet along said north boundary of the C. & N. W. right of way to the west boundary of Section 5, T33N, R78W, 6th P.M., thence North 0° 15' East 768.3 feet along said west boundary of said Section 5 to the point of beginning, containing 10 acres, more or less.

SAVE AND EXCEPT:

A strip of land 136.0 feet wide along the south boundary of a ten acre tract of land in the NW/4SW/4 of Section 5, T33N - R78W of the 6th P.M., described as follows:

The strip of land hereby conveyed and quit claimed being all that portion of the above described ten acre tract as follows:

Beginning at a point which is the intersection of the west boundary of Section 5 and the north boundary of the Chicago, Burlington & Quincy Railroad Company right of way, which point bears S 0° 15' W a distance of 919.3 feet, more or less, from the west quarter corner of said Section 5, thence running N 0° 15' E along the west boundary of said Section 5 for a distance of 137.4 feet; thence running S 81° 29' E for a distance of 555.9 feet parallel to the north boundary of the Chicago & North Western Railway Company right of way and 136.0 feet northerly thereof when measured at right angles thereto, to a point on the east boundary of said ten acre tract; thence running S 15° W for a distance of 137.4 feet to appoint on the north boundary of said railway company right of way; thence running N 81° 29' W, along the north boundary of said railway company right of way for a distance of 555.9 feet to the point of beginning.

Said strip of land containing 1.74 acres, more or less of which approximately 1.28 acres are contained in the right of way of the present highway.

Parcel 2 -

A tract of land in the Northwest Corner of said N/2SW/4 of Section 5, Township 33 North, Range 78 West of the 6th P.M., said tract being more particularly described, as follows:

Beginning at the Northwest Corner of said N/2SW/4 of Section 5, running thence S 0° 15' W., 151 feet along the west boundary of Section 5 to a point on the south boundary of the right of way for C. B. & Q. RR., which point is the Northwest Corner of the North Central Gas Co.'s tract, thence S 86° 33' E., 549.7 feet along said railroad right of way boundary to an iron pin marking the northeast corner of said Gas Co.'s tract, thence S 0° 15' W., 314.0 feet along the east boundary of said Gas Co.'s tract to a ½" steel reinforcing rod marking the Northwest Corner of the tract being described, thence S 81° 33' E., 800.0 feet along a line parallel to the north boundary of

Exhibit "A" Page 1 of 2

the State Highway U S 20, to a ½" reinforcing rod marking the Northeast Corner of said tract being described, thence S 0° 15' W., 400.0 feet to a ½" reinforcing rod on the north boundary of the 100 feet wide right of way for State Highway U S 20, marking the Southeast Corner of the tract being described, thence N 81° 33' W., 800.0 feet along said highway right of way to an iron pin on the east boundary of the Gas Co.'s tract, marking the Southwest Corner of the tract being described, thence N 0° 15' E., 400.0 feet along the east boundary of the Gas Co.'s tract to the above described Northwest Corner of the tract being described, situated in the County of Natrona, State of Wyoming.

Parcel 3 -

Commencing at the West Quarter Corner of Section 5, Township 33 North, Range 78 West of the 6th P.M., Natrona County, Wyoming, thence South 0° 15' West, 151.0 feet to a point, thence South 86° 33' East, 549.7 feet to the point of beginning, said point being situated at the Northeasterly Corner of the North Central Gas Company's tract and also a point of the southerly right of way line of the Chicago Burlington and Quincy Railroad, thence South 86° 19' East, 793.7 feet along the southerly right of way line of said railroad to a point, thence South 0° 15' West, 381.5 feet to a point, thence North 81° 33' West, 800 feet to a point, situated on the easterly boundary of the North Central Gas Company's tract, thence North 0° 15' East, 314.7 feet along said boundary to the point of beginning, containing 6.36 acres.

Parcels 1, 2 and 3 comprise the "Property" and contain 21.97 acres, more or less.

Exhibit "A" Page 2 of 2

EXHIBIT "B"

NOTICE OF USE RESTRICTIONS AND RESTRICTIVE COVENANTS

Attached to and made a part of that certain Special Warranty Deed dated 1, 24, 2010 by and between Kinder Morgan, Inc., as Grantor, and KM Upstream LLC, as Grantee

- 1. The Property is presently zoned heavy industrial pursuant to the 2000 Natrona County Zoning Resolution. KM Upstream LLC does hereby agree and sets forth that said Property shall not be used for any other purpose than heavy industrial as set forth in the Natrona County Zoning Resolution.
- The groundwater under or on the Property shall not be used for any use or purpose, except for monitoring of groundwater elevations and periodic sample collection, without the express approval of KM Upstream LLC, the United States and the State.
- 3. If any excavation into or through the ground surface at the Property is conducted and soil is going to be sent off site for any reason, the soil will not be disposed of, applied or used at property zoned for residential use unless it is tested in accordance with an EPA or Wyoming DEQ approved methodology and shown to be safe for residential use.
- 4. The Property shall not be used for any purpose that may cause or result in a violation of any federal, state, or local laws, ordinances, or regulations related to environmental conditions and contaminants on or under the Property.
- 5. The Property shall not be used for any purpose that is determined to create, cause, or result in risk to human health or the environment related to environmental conditions and contaminants on or under the Property as determined by the United States, State, or any other governmental agency having jurisdiction over the Property.
- 6. The Property shall not be used for any purpose inconsistent with any existing remedy agreement, decision document or other applicable agreement or document or decree or order, or for any purpose that interferes with the implementation or completion of any response actions required thereby.
- 7. The restrictions which are imposed upon this Property shall run with the land and be binding upon KM Upstream LLC and its successors, assigns, future owners, future lessees, sub lessees and occupants of the Property, including persons who take title to the Property as heirs, and their invitees, guests, agents, employees or persons acting under their control or direction. The restrictions are imposed for the purpose of protecting the public health and the environment and to prevent interference with the performance and maintenance of any response actions required by the United States, State and any other governmental agencies having jurisdiction over the Property.
- 8. KM Upstream LLC, on behalf of itself and its successors, transferees and assigns, does hereby agree that the United States and the State, their successors and assigns shall have the right to enforce any and all terms contained herein.
- 9. The restrictions on the use of the Property may not be modified, amended or terminated by KM Upstream LLC, its successors, transferees and assigns, without written approval of the United States or the State. In the event that KM Upstream LLC conveys, transfers or assigns all or any part of its right, title and interest in and to the Property, KM Upstream LLC, the United States, and the State shall have the retained and reversionary right to enforce the terms and conditions hereof.
- 10. KM Upstream LLC agrees that in the event of KM Upstream LLC's default or non-compliance with the terms of this Notice of Use Restrictions and Restrictive Covenants, the United States and the State shall have the right of specific performance of this instrument and the right to obtain from any court of competent jurisdiction a temporary restraining order, preliminary injunction and permanent injunction to obtain such performance.
- 11. It is KM Upstream LLC's intent that this Property be encumbered by this Notice of Use Restrictions and Restrictive Covenants and that such restrictions run with the land and are enforceable by the United States and the State for the benefit of the public.
- 12. This Notice of Use Restrictions and Restrictive Covenants shall be interpreted in all respects in accordance with the laws of the State of Wyoming, resolving any ambiguities and questions of the validity of specific provisions so as to favor restricting use of the Property to uses that are protective of human health and the environment and that will not interfere with the performance and maintenance of

Exhibit "B" Page 1 of 2

any response actions required by the United States, State, or any other governmental agencies having jurisdiction over the Property.

13. If any provision of this Notice of Use Restrictions and Restrictive Covenants, or the application thereof to any person or circumstance, is found to be invalid, the remainder of the provisions of this Notice of Use Restrictions and Restrictive Covenants, or the application of such provision to persons or circumstances other than those as to which it is found to be invalid, as the case may be, shall not be affected thereby.

Exhibit "B" Page 2 of 2